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Submissions should be sent to Professor Michael A. Hitt, *Academy of Management Journal*, College of Business Administration, Texas A&M University, College Station, Texas 77843-4221.

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Academy of Management JOURNAL

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RESEARCH NOTES

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FROM THE EDITOR

It is tradition with *AMJ* to provide the statistics on submissions, revisions, acceptances, and review times in the last issue of each volume. Therefore, below are the statistics for *AMJ* during the period of July 15, 1991, through July 14, 1992.

Submissions Received from July 15, 1991 through July 14, 1992

	Number	Percent of Total	Average Review Time (days)
New submissions			
Rejects with review	274	59.83	50.72
Returned without review	35	7.64	2.40
Under revision	78	17.03	57.26
Withdrawn	2	0.43	
Under review	69	15.07	
Totals	458	100.00	52.17 days overall average (exclusive of rejects without review)
Revisions received			
Accepts	37	31.90	19.19
Rejects with review	14	12.07	49.93
Under revision	52	44.83	48.04
Withdrawn	1	0.86	
Under review	12	10.34	
Totals	116	100.00	37.91 days overall average

As you will note from the table above, we received 458 new manuscript submissions during the 12-month period noted. Although no manuscripts were accepted on the first review, there were 37 manuscripts accepted from the 116 revisions submitted. Furthermore, a large number of the revised manuscripts submitted are undergoing further revision at our request or are under review. Thus, a good number of these manuscripts will eventually be accepted for publication in *AMJ*. Additionally, there were several other manuscripts accepted for publication that began the review process under the former editor, Rick Mowday.

We received approximately the same number of new manuscript submissions during the most recent 12-month period as compared to the previous 12-month period. The demand for publication in *AMJ* remains high. Furthermore, the average review time suggests that authors receive feedback on their manuscript in an efficient time period (between seven and eight weeks from initial submission). Additionally, the results presented above suggest that revisions, when resubmitted, have a much higher probability of acceptance than initial submissions and a much higher probability of accep-

tance than rejection. Therefore, authors who receive an invitation to revise and resubmit their work should give it strong consideration.

Although it is somewhat perilous, I have attempted to categorize manuscript topics into particular division or interest group topic areas. The greatest number of manuscripts received focused on topics in organizational behavior (26%), business policy and strategy (18%), personnel and human resources (11%), and organization and management theory (10%). Furthermore, I received manuscripts representing topics in all but one of the 21 divisions and interest groups of the Academy. Thus, we received manuscripts on a broad and diverse set of research topics. Additionally, there seems to be an increasing amount of research on interdisciplinary topics that cross division boundaries.

As you will note from the statistics, we received a total of 574 manuscripts (counting new submissions plus revisions) and almost 600, including manuscripts beginning under the former editor. For the first two years I have been receiving new manuscripts, *AMJ* has received over 1,100 submissions. I conclude that the *Journal* is alive and healthy.

Acknowledgments

As you can see from the statistics, the management of *AMJ* is a formidable task. However, it is accomplished not by one person, but by a team. That team is composed of many persons who deserve recognition and appreciation. First, I want to thank Wanda Bird, who helps me most directly in management of the *Journal* activities, and Kristine Mattson, Bradley Britton, and Steven Helms, who all play important roles in processing the manuscripts, maintaining the files, and communicating with the authors to ensure timely reviews and decisions. Additionally, Steve Gomes and Seph Doliner continue to do excellent work in the production and copyediting processes. Also, I wish to thank Jan Beyer, immediate past president; Ray Aldag, current past president; Don Hambrick, president; and Ken Cooper, business manager of the Academy of Management. They have all been highly supportive of *AMJ* during my editorship. Finally, Benton Cocanougher, dean; Don Hellreigel, department head; and all of my colleagues at Texas A&M have been highly supportive of my editorial activities and of the *Journal*. I thank all of these people for their past and continuing support.

I have also depended on the voluntary help of many highly qualified scholars. Among those are the consulting editors, editorial review board members, and ad hoc reviewers. The consulting editors, Susan Ashford, Angelo DeNisi, Jane Dutton, and Alan Meyer, continue to do an exemplary job by aiding me in the decision process and in helping authors to develop their work to maximize its potential contribution. The editorial review board members continue to provide thorough, quality, and prompt reviews, for which *AMJ* has developed a strong reputation over the years. It is also gratifying to receive such a positive response from those who are asked to review manuscripts on an ad hoc basis. The overwhelming majority respond with high-quality and timely reviews. During the 12-month period

noted earlier, we used 404 ad hoc reviewers. I want to thank the consulting editors, editorial reviewer board members, and ad hoc reviewers for all of their help and continuing support. The ad hoc reviewers are recognized in this issue.

Changes at *AMJ*

The December 1992 issue marks the first time we have published five issues in one year. With five issues, we published more articles (47) and more pages than at any time in the past. Furthermore, as has been reported previously, we will publish six issues of *AMJ* in 1993. There will be five issues containing regular competitive submissions to *AMJ*, and the sixth issue will publish those articles that were competitively reviewed and selected for our two special research forums. Therefore, 1993 should represent another record year for *AMJ* in the number of articles and pages published. Because of these changes, the average time for publication after acceptance of an article has been dramatically reduced. We continue to attempt to serve the membership of the Academy and the field of management by publishing quality scholarly management research, providing an efficient and thorough review process for all manuscripts submitted, promptly publishing work that has been accepted for publication, and publishing research that contributes to management theory and practice.

Last Year of Editorship

The 1993 volume marks the last year of my editorship. The individual selected as associate editor will begin accepting new manuscripts in July 1993. I will continue to manage manuscripts in revision until the end of 1993. Those who have been invited to revise manuscripts during my editorship, but have yet to resubmit them, may wish to do so promptly to ensure continuity in the review process.

Concluding Remarks

We continue to welcome your input and submissions of your scholarly empirical research in management. With the large number of subscribers and wide dissemination of the *Journal*, we continue to have a strong following and readership. As a result, *AMJ* continues to represent an excellent outlet for disseminating cutting-edge management research throughout the United States and the world.

Michael A. Hitt

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DETERMINANTS OF FACULTY PAY: AN AGENCY THEORY PERSPECTIVE

LUIS R. GOMEZ-MEJIA
Arizona State University
DAVID B. BALKIN
University of Colorado, Boulder

This study tested 12 hypotheses on the determinants of faculty pay using an agency theory perspective. The sample consisted of 353 professors of management. Data were collected from survey responses, curricula vitae, and the Social Science Citation Index. Results show that the primary determinants of faculty pay, in both institutions that grant doctorates and those that do not, are the number of top-tier journal publications a faculty member has authored and changes in institutional affiliation. Teaching performance and numbers of citations, second-tier publications, and books published affect pay allocations only for faculty members who have exceptional research records.

The distribution of rewards among faculty members in universities has been of much interest to organizational scientists since the publication of the early writings on this issue by Weber (1919). Faculty members play a pivotal role in the creation and dissemination of knowledge for society, yet the reward structure for university professors still remains clouded in controversy among both academics (e.g., Konrad & Pfeffer, 1990) and popular writers (e.g., *Business Week*, 1990). Are faculty members paid according to their levels of performance or some other set of determinants? If the former is true, which performance dimensions—teaching or research, for instance—are being reinforced with pay in institutions of higher learning? Answers to questions such as these are important because how faculty members allocate personal time and effort is likely to reflect the nature of the compensation system used by their employing universities (cf. Reskin, 1977).

Previous research on the determinants of faculty pay has yielded mixed results. For example, Katz (1973) found a significant relationship between number of publications and pay, but no link between teaching and pay. Ferber and Loeb (1974) found no relation between faculty pay and various performance measures. More recently, Konrad and Pfeffer (1990) found a small relationship between faculty research productivity and pay and no

We would like to thank John Duran, Beth Crary, Theresa Welbourne, Rich Thompson, Linda Dickey, and Arden Grabke for their help in various stages of this study. We also benefited from the comments of Robert Cardy, Ken Carson, Richard Gooding, Peter Hom, Barbara Keats, Robert Keller, Angelo Kinicki, Rhonda Reger, and two anonymous reviewers.

relationship between teaching and financial rewards. Unfortunately, a number of problems with previous research on faculty pay–performance relations may account for these conflicting findings, and they were addressed in this study.

First, with some notable exceptions (e.g., Konrad & Pfeffer, 1990), previous research on the determinants of faculty pay has been largely atheoretical in nature and driven by curiosity. A tighter coupling between theory and empirical research findings is sorely needed in this research domain. The present study addressed this problem, using an agency theory perspective to test some hypotheses on the determinants of faculty pay. Agency theory has previously been used to provide a theoretical framework to predict the basis of pay for "nonprogrammable" jobs, or jobs consisting of tasks that are difficult to structure and where incumbents enjoy extensive discretion, such as those of executives (Tosi & Gomez-Mejia, 1989) and salespersons (Eisenhardt, 1988). We show how agency theory can be applied to university faculties through tests of 12 hypotheses on faculty pay derived from an agency theory framework. This process improves conceptual understanding of the determinants of faculty pay; it also provides some interesting extensions of agency theory to the study of intraorganizational pay allocations.

Second, most previous studies in this area have been based on data collected from either a single university or a handful of institutions (e.g., Ferber & Loeb, 1974; Hamermesh, Johnson, & Weisbrod, 1982; Katz, 1973; Kaun, 1984). Although lack of data accessibility and costs account for many of these limitations, these are essentially case studies. The present investigation was based on a national sample of management professors spread across 90 universities, so that the results are not institution-specific. This research strategy also allowed us to examine the effect of changes in institutional affiliations on faculty pay and the conditions under which the financial returns for such moves are greatest.

A third, and perhaps more intractable, problem in earlier research is that the productivity measures used have been seriously deficient. The typical approach has been to use a total count of faculty publications as reported by study participants with no concern for qualitative differences across publication outlets (e.g., Hamermesh et al., 1982). Removing the assumption that faculty research performance can be equated with a simple mathematical count of publications severely limits the robustness of the findings. This study shows that very different results can be obtained when publication outlet quality is taken into account. Other studies have relied exclusively on counts of citations to a person's work as a proxy for research performance (e.g., Diamond, 1986). In the present study, we used both a measure of the quality of publications, as judged by the outlets in which they have appeared, and citation counts. Using these two measures permitted a more comprehensive and accurate assessment of faculty research productivity. It also allowed for testing some interesting hypotheses concerning the conditions under which quality of publications, sheer quantity of publications, and citation count are the most significant determinants of faculty pay.

A final problem with previous studies is that practically all have ignored teaching. Although Konrad and Pfeffer (1990) found that teaching had a negative correlation with pay (−.26), the measure used in their study was teaching intensity, or the number of hours spent teaching, not teaching performance. The secondary data source they had to work with, the 1969 Carnegie Commission on Higher Education Faculty Survey, was responsible for this limitation, but nevertheless, their results say nothing about whether or not effective teaching is rewarded in academia. This is an important issue to address, given the growing national attention given to teaching and the alleged neglect of teaching in favor of research, noted, for instance, in the book *Profscam* (Sykes, 1988). In the present study, we examined teaching effectiveness as a determinant of faculty pay. We also explored the conditions under which teaching performance is and is not rewarded.

THEORETICAL FRAMEWORK AND HYPOTHESES

An agency relationship is in effect whenever one party, a principal, hires another person—an agent—who possesses specialized knowledge and skills (cf. Eisenhardt, 1989; Jensen & Meckling, 1976). Proponents of agency theory assume that each party acts in its own self-interest. This assumption gives rise to the so-called agency problem because the interests of the principal and agent may conflict. The agent may shirk or engage in self-serving behaviors, such as using work time and organizational resources for personal gains. The more autonomy and independence the agent enjoys and the greater the specialized knowledge required to perform the task, the more significant this "moral hazard" becomes (Holmstrom, 1979). The concept of moral hazard was first developed in the insurance industry, where an insurance policy may create an incentive for the policyholder to cause an accident, such as the loss of a business through arson (Arrow, 1985). "Information asymmetries" that provide one party (the agent) with information that is not available to the second party (the principal) can give rise to moral hazard. To reduce the moral hazard inherent in agency relationships, principals develop mechanisms, or "rules of the game," to (1) monitor agents' actions and (2) reward agents when they act in accordance with objectives that their principals deem important (Jensen, 1983). When an agent has high autonomy, independence, and highly specialized knowledge, monitoring becomes very difficult and expensive, so principals will rely on incentives to reward agents for appropriate outcomes (Tosi & Gomez-Mejia, 1989).

In a university setting, principals face a classical agency problem with respect to faculty. (The members of a university's board of regents are the principals for policy making, and university officials are the principals for policy execution; we designated both of these as "administrators" for short.) Information asymmetries between faculty and administrators create steep agency costs for the latter if they attempt to directly monitor faculty behavior. Areas of expertise and research tend to be very idiosyncratic to individuals. Except for student contact time in the classroom, which seldom ex-

ceeds 12 hours a week, faculty members are subject to very few structured constraints on their time. Customary rules, such as the tenure system and multiyear appointments for probationary faculty, give most professors an unsurpassed amount of freedom. This freedom presents the administrators with a major challenge: how to prevent faculty members (agents) from taking advantage of their privileged and nonprogrammable position. For example, some faculty members may put minimal effort into teaching and research and much effort into either self-serving endeavors, such as consulting, or leisure activities that do not serve the interests of the university. Because behavioral controls by superiors are not feasible in this setting (cf. Ouchi, 1977), university administrators may tie faculty pay to such behavioral outcomes as research productivity in order to align the interests of the faculty with those of the university.

Hypotheses

The first five hypotheses concern the role of research productivity as a behavioral outcome mechanism. Other things equal, we would expect that university administrators will allocate rewards to faculty members in proportion to the latters' contributions to the literatures relevant to their fields. Since publication outlets vary widely in terms of rigor of review process, acceptance rates, number of revisions requested, and time investment, agents may be tempted to maximize their research output by publishing in easier outlets. To prevent this from happening, principals would be expected to provide more pay to faculty members whose manuscripts appear in select outlets known for their quality and to use this pairing of rewards and performance outcomes as an efficient form of incentive alignment. Because principals cannot claim their own expertise as justification for pay allocations, given information asymmetries, a research performance measurement that is comparable across faculty members—publications in top-tier outlets—allows principals to distribute rewards in a defensible manner.

For individuals who publish in top-tier outlets, which serve as a screening test of their research performance, secondary, less prestigious publications may bring additional financial returns. Administrators will treat secondary publications as "frosting on the cake," as an extension of (but not a substitute for) scholarly productivity. These second-tier publications are less likely to be rewarded in isolation, in the absence of a demonstrated scholarly record in top-tier, or premier, outlets. There are two reasons for this likelihood. First, secondary publications by themselves tend to contribute less than premier publications to a university's reputation and prestige (e.g., Miller, 1987; Niemi, 1988). Second, because the quality of research published in secondary publications varies widely, a principal would need to read and understand each publication to assess its quality, an uncertain and costly process. The principal is not likely to have the expertise to pass professional judgment on an agent's secondary publications, given the extensive information asymmetries between the parties. The agency costs may be too steep to allow the principal to monitor the quality of secondary pub-

lications as an independent performance outcome. Therefore, top-tier publications provide a common performance metric that principals can use efficiently as a screening device or quality control mechanism to ensure that faculty members prove themselves before secondary publications are rewarded. By creating this contingency, principals reduce the adverse effect of imperfect information, can better estimate the intellectual contributions of agents, and discourage opportunistic actions.

We would also expect that the extent to which a person's work is cited by other scholars will bring a positive financial return. A citation may be perceived as a signal in the knowledge market that indicates a faculty member's research has influenced the work of other scholars. By rewarding citations, principals discourage agents from pursuing narrow and trivial studies, by, for instance, carving large projects into small pieces, or conducting convenience studies that are not within a discernible research stream. At the same time, administrators are more likely to reward faculty members who have exceptional research records in top-tier journals for citations, thus preventing agents from earning financial returns on a few publications in perpetuity without engaging in additional research. Although there may be cases of well-rewarded faculty members having only a few classical, heavily cited publications, these cases tend to be outliers. Principals recognize that it is in the best interests of their institutions to provide incentives for agents to produce a steady stream of high-quality research. Thus, the most potent predictor of faculty pay should be publication in top-tier scholarly journals, with second-tier publications and citations playing ancillary roles.

Hypothesis 1: Faculty members' pay is a positive function of research appearing in premier, refereed outlets in their fields.

Hypothesis 2: Manuscripts published in secondary and nonrefereed outlets are less likely to have an independent effect on faculty pay.

Hypothesis 3: Faculty publications appearing in secondary and nonrefereed outlets are more likely to be positively related to the pay of individuals who also publish in premier journals.

Hypothesis 4: Research impact, evidenced by how often other scholars cite a faculty member's work, will be positively related to that individual's pay.

Hypothesis 5: Research impact will exert a stronger influence on pay for individuals with exceptional records of premier scholarly output.

The next set of hypotheses compares the salience of research and teaching performance with respect to reward allocation. We expected research productivity to play a larger role in faculty pay decisions than teaching performance for several reasons. First, the perceived quality and prestige of

a university are highly correlated with the scholarly output of its faculty (Henry & Burch, 1974; McCormick & Bernick, 1982; Reskin, 1977; Siegfried & White, 1973). Principals can be expected to place a greater emphasis on outcomes, like research, that have the greatest impact on an organization's objectives. Second, faculty members who are outstanding scholars assume the role of "boundary spanners" in the external environment for their institutions. Accomplished researchers can control scarce resources that can reduce uncertainty for their universities (Newman, 1988; Pfeffer & Salancik, 1978). For example, top researchers have high visibility in their professional communities, help recruit outstanding faculty and attract superior students, and tend to receive external grants. Third, since research has greater external visibility than teaching, which tends to be recognized mainly within an institution, outstanding researchers need to be well compensated to prevent their taking jobs with competing institutions. Finally, principals can measure faculty research productivity with more precision than they can measure teaching performance, a behavioral process. Assessment of teaching effectiveness may require direct observations of faculty from multiple evaluators, in addition to gathering students' ratings, and principals may avoid such a procedure because faculty members may feel that evaluators would disrupt classes and threaten academic freedom. Outcomes that can be measured more precisely and unequivocably, such as research, can be expected to have greater influence over the distribution of rewards. Thus,

> *Hypothesis 6: Research performance will be a more potent predictor of monetary rewards for faculty members than teaching performance.*

Although research productivity will be the primary criterion in pay allocations, effective teaching is still an important objective of most universities. We expected that teaching performance would play a subsidiary role in faculty pay decisions, with evidence of scholarly publications acting as a necessary prior condition. There are two reasons for this prediction from an agency theory perspective; both concern availability, ease of interpretation, and costs of gathering performance information. First, research productivity can be efficiently evaluated both externally and internally (see Hypotheses 1 and 6). Teaching performance is primarily assessed internally. Given limited resources, unless teaching-related rewards are made contingent on research performance, a university will lose ground to competing institutions. Schwab provided indirect support for this contention in his research on faculty turnover: "Since not only high [research] performance, but also low performance can be observed externally, low performers are likely to be unemployable at comparable institutions. . . . If the rewards for performance are greater in the external market, an organization may have difficulty retaining high performers" (1991: 96).

Second, although those who do a good job in the classroom are serving an important university constituency, the evaluation of teaching perfor-

mance is much more subjective, ambiguous, and controversial than that of research productivity, for which outcome measures are readily available. Therefore, evidence of research productivity serves as an inexpensive quality control check on assessments of teaching performance. The superior classroom performance of a top scholar, however measured, is more immune from questioning because his or her mastery of the subject matter has been independently established. Indicators of high teaching performance for an individual who is not engaged in scholarship may be subject to alternative interpretations; a teacher may be credited with being an entertainer, or with repackaging publicly available information but not disseminating cutting-edge knowledge, or with having superior platform or delivery skills but a lack of depth or rigor. Monitoring these different effects in the absence of a strong scholarly record is labor intensive and uncertain at best. Principals may reduce performance uncertainties by relying on scholarly publications to verify or correct potential errors in teaching-related judgments.

> *Hypothesis 7: The teaching performance of faculty members who publish in top-tier journals is more likely to be rewarded than that of faculty members who lack such publications.*

Although the agency problem of aligning the interests of principals and agents is common to all types of organizations (Jensen & Meckling, 1976), superordinate organizational objectives should influence the relative emphases a principal places on particular performance dimensions for pay allocation purposes. In the context of this study, relative emphases on research and teaching are likely to vary depending on the goals of an academic institution. Universities that grant doctoral degrees have a primary mission of producing research and therefore are likely to place a stronger emphasis on research output as the basis for faculty pay allocation than non–doctorate-granting institutions. In other words, the creation of knowledge as evidenced through scholarly publications is part of the technical core of most institutions granting Ph.D. degrees (Tuckman, 1979), and this fact should be reflected in how their administrations design the reward structures for their faculties. Hypotheses 8 and 9 address this issue.

> *Hypothesis 8: Institutions that grant doctoral degrees are more likely to reward faculty members for research productivity than non–doctorate-granting institutions.*

> *Hypothesis 9: Institutions that do not grant doctoral degrees are more likely to reward faculty members for teaching performance than doctorate-granting institutions.*

Another institutional factor that may influence the relative emphases that principals place on research and teaching with respect to rewards is the source of a university's funding. Private universities derive a larger portion of their budgets from tuition dollars than public academic institutions,

which are subsidized by tax dollars provided by state legislatures. Administrators at private academic institutions can be expected to place a stronger emphasis on excellent teaching than administrators at public institutions because the customers are paying a premium to attend the private school and expect higher-quality teaching to justify this additional expenditure. How well a university manages this resource dependency will directly affect its institutional performance and survival. In other words, successful teaching in a nonsubsidized university plays a pivotal role in the institution's coping with the most critical environmental uncertainty facing it—student and parental satisfaction that will assure a continued flow of financial support. Thus,

> *Hypothesis 10: Privately funded universities are more likely to reward faculty members for teaching performance than publicly funded universities.*

A nonperformance factor that may explain variations in faculty pay is the labor market. Transactions between principals and agents take place within the context of a market. Agency theory recognizes that if an agent finds its contract with a principal unsatisfactory, the agent may leave the current organization and negotiate a more satisfactory contract with another employer. Moreover, the propensity for an agent to leave is positively related to alternative employment opportunities; these are in turn a function of supply and demand inbalances in the relevant labor market (Jensen, 1983). A scarce labor supply of faculty members can affect pay structures in academic institutions in two ways. First, administrators are constrained in their ability to pay faculty members already in the institution's internal labor market at a level equal to what they could command in the external labor market. Part of this constraint is attributable to cost controls, whereby present faculty pay is treated as a quasi-fixed cost, but new hiring is treated as a variable cost, set at whatever the market will bear. This difference enables principals to attract new faculty members without having to raise the entire compensation schedule. Restrictive rules within the internal labor market, such as the tenure system and seniority-contingent benefits like sabbaticals, discourage present faculty members from changing employers. Perhaps just as important, administrators have more freedom politically to offer higher pay to new recruits than to similar incumbents because the former are typically hired through some form of faculty vote, empowering principals to offer whatever is necessary to attract them. No such legitimization occurs when administrators make internal pay allocations to present faculty, so they are reluctant to unilaterally establish large pay differentials for those already in the system for fear of retribution. From an agency theory perspective, this discrepancy will increase the cost to the principals in terms of faculty turmoil, nonproductive time devoted to voicing and handling grievances, dissension and stress that may induce the best faculty members to leave, and creation of a negative image for the institution in academic

circles, which are usually small and relatively closed. Therefore, the market is likely to exert an autonomous upward force on faculty pay for individuals willing to change employers, regardless of observed performance. In other words, the market rewards faculty members who change jobs and therefore capitalize on new hire rates, so that these "prospectors" are more likely to accrue greater financial returns than their counterparts who remain with one employer and meet university expectations. Thus,

> *Hypothesis 11: A faculty member's pay is a positive function of his or her number of previous institutional affiliations.*

The market also affects faculty members' pay differently depending on their observable track records. Faculty members learn that labor mobility is enhanced by focusing on research productivity, which tends to be the most visible component of faculty performance, regardless of the performance priorities of their home institution. Following the logic of agency theory, institutions compete with each other in an open market for talent (cf. Jensen, 1983). Given that (1) faculty members with strong scholarly records are scarce, (2) research productivity is an important performance criterion in most institutions, as per Hypothesis 1, and (3) an individual's research record is in the public domain, when hiring faculty members administrators will pay a premium to individuals whose scholarly productivity is exceptional.

> *Hypothesis 12: Faculty members with exceptional scholarly records will receive higher pay for changing institutional affiliations than will individuals lacking such records.*

Several control variables that may influence faculty pay were included in this study. These variables can be classified as individual difference, institution, and market variables. The individual difference variables are age (Hansen, Weisbrod, & Strauss, 1978), experience (Ferber & Loeb, 1974; Schwab & Dyer, 1979), gender (Ferber & Loeb, 1974; Pfeffer & Davis-Blake, 1990), faculty rank (Ferber & Loeb, 1974; Schwab & Dyer, 1979), tenure (Allen & Keaveny, 1981; Pfeffer & Davis-Blake, 1990; Schwab & Dyer, 1979), and subfield (Diamond, 1986). We included university quality and union status as institutional control variables. Prestigious schools may pay a premium to attract and retain the best faculty candidates. Their ability to pay is also greater than that of less prestigious schools (Hansen et al., 1978). The presence of a faculty union tends to reduce dispersion of wages, which may alter the relationship between pay and performance (Freeman, 1982). Finally, we controlled for two environmental influences: the median yearly family income in a given state, an indicator of economic conditions, and the cost of living in the metropolitan area in which a given university is located. Both of these variables tend to be associated with pay levels (Fay, 1989).

METHODS

A stratified random sample of 1,100 management professors was used for the study, drawn from the membership list of the Academy of Management, which has approximately 8,500 members. We selected 60 percent of the total sample from doctorate-granting institutions and 40 percent from schools that did not grant doctorates. This sampling strategy was intended to ensure that a sufficient number of respondents would be available from institutions in which research played a major role, since this was one of the primary variables in the study. Focusing on only management faculty greatly reduced the complexity of the study and controlled for many exogenous variables, such as level of paradigm development (Konrad & Pfeffer, 1990), customary practices (Katz, 1973), and the average number of citations per faculty member, which may affect the marginal value of each citation (Diamond, 1986). We excluded Academy of Management members who were not in management departments but were in, for instance, psychology or sociology departments.

A survey was sent to each individual. It contained questions pertaining to his or her demographic characteristics, salary, publication record, teaching evaluations, and institutional factors. Questions are discussed in more detail below. Respondents could remain anonymous and complete a detailed matrix of their publication records or could attach a curriculum vitae to the questionnaire, thus reducing the amount of time it took to complete the survey to ten minutes or less.

A total of 451 completed surveys were returned (a 41 percent response rate). Of the respondents, 353 (32 percent of the group surveyed) included their vitae with their questionnaires. The data reported here only concern the surveys that included vitae. We made this decision for several reasons. First, much more extensive information on an individual's record can be obtained from a curriculum vitae than from a questionnaire. Second, this approach avoids the problem of single source variance present when all data points are obtained from one questionnaire. The approach also allowed us to externally verify information and to obtain multiple indicators on each case, such as citations, number of job changes, and institutional prestige. It was thus feasible to test several of the hypotheses of the study in a much more objective and reliable fashion than would have otherwise been possible. Third, given that most respondents included their vitae (78 percent), and the relatively large sample size (N = 353), it seemed most appropriate to conduct the analysis exclusively on this group.

Table 1 summarizes descriptive sample information. The typical respondent was a man earning between $41 and $55 thousand (in 1988 dollars) for a nine-month appointment, between 35 and 50 years old, in the field of organizational behavior and human resource management, working in a nonunionized, public, doctorate-granting institution. To check the representativeness of the sample, we compared the 353 respondents with the mail-out sample (N = 1,100) and with an independent sample randomly drawn

TABLE 1
Sample Description: Frequencies of Selected Demographic Characteristics[a]

Variables	*N*	Percentage
Individual		
Gender		
Man	295	83.6
Woman	57	16.1
Academic experience, years		
Under 2	63	17.8
2–4	83	23.5
5–6	46	13.0
7–10	65	18.4
11–15	38	10.8
15+	58	16.4
Rank		
Instructor	14	4.0
Assistant	106	30.0
Associate	126	35.7
Full	106	30.0
Tenure		
Yes	144	40.8
No	209	59.2
Nine-month salary, in thousands of dollars		
40 or less	73	20.6
41–45	74	21.0
46–50	66	18.7
51–55	52	14.7
56–60	25	7.1
61–70	28	7.9
71+	31	8.8
Age, years		
Under 35	60	17.0
35–40	96	27.2
41–45	87	24.6
46–50	39	11.0
50+	71	20.1
Subfield		
Organizational behavior–human resource management	185	52.4
Strategy-policy	99	28.0
Production-operations	17	4.8
Other	46	13.0
Institutional		
Highest degree offered		
Bachelor's	17	4.8
Master's	96	27.2
Doctoral	236	66.9
Type		
Public	233	66.0
Private	117	33.2
Unionization		
Yes	67	19.0
No	277	78.5

[a] Totals may not add up to 100 percent because of missing data.

from the Academy of Management membership (N = 350) on individual's gender and on institution's union status, funding source, and doctoral status. The respondents (R), the mail-out sample (M), and the independent sample (I) were very similar: all were predominantly composed of men (R = 83.6%, M = 79.4%, I = 74.0%) and had institutional characteristics of nonunionization (R = 78.5%, M = 80.1%, I = 84.3%), public funding (R = 66%, M = 69.3%, I = 71.7%), and doctorate-granting status (R = 66.9%, M = 60.0%, I = 55.4%). Separate chi-square tests indicated that differences across the three samples were not statistically significant for any of the four above variables. We thus concluded that the respondents were fairly representative of the Academy of Management's membership.

OPERATIONAL MEASURES

Research Productivity

Research output for each case was measured qualitatively and quantitatively by recording the number of publications appearing in different journals, categorized by their prestigiousness, and the number of books published. Impact on the field was measured through citation counts. As per Hypothesis 5, we expected citation and publication counts to interact to affect pay.

Citation count. Citation counts may be viewed as an indicator of how useful a person's research is to other investigators. This measure has been employed extensively for more than two decades (cf. Cole & Cole, 1967; Diamond, 1985, 1986; Hamermesh et al., 1980; Schwab, 1991). Presumably, the greater the number of citations to an individual's work, the more valuable the individual's contributions are judged to be in the "market for ideas" (Laband, 1985: 218). For each individual in the sample, we obtained a citation count from the *Social Science Citation Index* (*SSCI*). Established in 1969, the *SSCI* is an annual publication that lists citations to books and articles that have appeared in over 5,000 journals, including most business journals and management periodicals (see Diamond [1986] for additional description of the *SSCI*). We counted all citations under a person's name up to the year 1988, except self-citations. The average number of citations per individual was 8.36 (s.d. = 24.51).

Journal quality. Next to citation counts, the second most commonly used indicator of research quality is assessment of the outlets in which a person publishes. Presumably, individuals who consistently publish in the premier journals of their fields conduct better research than those who do not (Stahl, Leap, & Wei, 1988). In practically all previous work, researchers have assessed journal quality in terms of how members of the relevant profession perceive journals. "Image-capturing" procedures based on surveys of academics leading to a prestige ranking of journals have been extensively used in a variety of fields, including accounting (e.g., Andrews & McKenzie, 1978), economics (e.g., Katz, 1973), political science (e.g., Morgan & Fitz-

gerald, 1977), public administration (e.g., Vocino & Elliott, 1984), marketing (e.g., Henry & Burch, 1974), and management (e.g., Coe & Weinstock, 1984). The perceived quality of journals has in turn been widely used to rank quality and prestige of academic departments (e.g., Andrews & McKenzie, 1978; Henry & Burch, 1974; Morgan & Fitzgerald, 1977; Niemi, 1988). Researchers have found that the perceived quality of journals is highly correlated with their acceptance rates: those that most carefully referee and screen papers tend to be accorded higher prestige by the members of a profession (Coe & Weinstock, 1984).

In this study, we determined quality of publication outlet in a manner similar to that used in the studies we have reviewed. First, a list of 56 journals in management and related organizational sciences was prepared. This comprehensive list (available from the authors) included all the management journals used in the earlier studies by Coe and Weinstock (1984), Sharplin and Mabry (1985), Stahl and colleagues (1988), and Niemi (1988) but went beyond them. The universe of journals used in the earlier studies was far too limited for our purposes. For instance, *Organizational Behavior and Human Decision Process*, the *Journal of Applied Psychology*, *Personnel Psychology*, and the *Journal of Management* were not included in some of the earlier studies (e.g., Coe & Weinstock, 1984). Likewise, strategy journals, such as *Strategic Management Journal* tend to have been underrepresented or totally omitted in previous evaluations of management journals.

Second, we sent the list of 56 journals to the chairpersons of the management departments of 60 institutions (a list is available from the authors) offering doctoral degrees in management, including all major universities listed in the earlier studies by Niemi (1988), Gourman (1987b), and Stahl and colleagues (1988). We chose department chairpersons to evaluate the journals because they are likely to have a broad understanding of what members of various subfields consider to be premier publication outlets. They are also more likely than other faculty members to be involved in personnel decisions on promotions, tenure, and merit pay that involve judgments of journal quality. Each department chair was asked to evaluate the extent to which "each of the journals listed below is a leading journal in the field" on a five-point Likert scale ranging from "strongly disagree" to "strongly agree." We received 42 surveys, representing a return rate of 70 percent.

A mean score was calculated for each journal, based on these responses. We then ranked the journals in descending order. Table 2 shows the top 21 journals (*Psychological Bulletin* and the *Journal of Organizational Behavior* were tied, with mean ratings of 2.85, so they were both included). As in earlier research, more generic journals tended to be ranked higher than more specialized ones. The *Academy of Management Journal*, *Administrative Science Quarterly*, *Organizational Behavior and Human Decision Process*, and the *Journal of Applied Psychology* were rated the highest.

Subsequent to our data collection, Extejt and Smith published an article providing a summary evaluation of 54 select journals "concerned with the behavioral aspects of management" (1990: 542). Those authors excluded

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TABLE 2
Management Journals Designated as Top-Tier[a]

	Present Study		Extejt and Smith	
Journals	Average Rating	s.d.	Average Rating	SSCI Impact Factor
Academy of Management Journal	4.52	0.83	1.41*	1.56*
Academy of Management Review	3.83	0.79	1.54*	1.54*
Administrative Science Quarterly	4.60	0.59	1.22*	2.85*
Decision Science	3.50	0.77		0.61*
Harvard Business Review	3.19	1.15	2.30*	1.24*
Human Relations	3.36	0.79	2.22	0.50
Industrial and Labor Relations Review	3.79	0.72	1.48*	2.06*
Industrial Relations	3.62	0.85	1.64*	1.44*
Journal of Applied Behavioral Science	3.45	1.11	2.09*	0.40
Journal of Applied Psychology	4.45	0.55	1.25*	1.78*
Journal of International Business Studies	3.26	0.94		0.43
Journal of Management	3.60	1.01	2.31*	0.43
Journal of Management Studies	3.43	0.86	2.56	0.98*
Journal of Occupational Psychology	3.48	0.80	2.20*	0.96*
Journal of Organizational Behavior (formerly *Journal of Occupational Behavior*)	2.85	0.98	2.35*	0.58
Journal of Vocational Behavior	3.21	0.98	2.08*	1.19*
Management Science	3.37	1.19		1.00*
Organizational Behavior and Human Decision Processes	4.14	0.81	1.39*	1.31*
Personnel Psychology	3.81	1.08	1.83*	1.03*
Psychological Bulletin	2.85	0.92	1.42*	3.72*
Strategic Management Journal	4.06	0.75		1.79*

[a] An asterisk indicates that a journal is rated in the top 21 of the 56 journals included in the present study's survey of management department chairpersons.

strategy-oriented journals like *Strategic Management Journal*. They had each journal rated on a four-point Likert scale (1 = best, 4 = worst) by 562 members of "behaviorally oriented" divisions of the Academy of Management (e.g., the organizational behavior group) and the Industrial Relations Research Association. They also published the "impact factor" of each journal from the SSCI, which is computed as the relative frequency with which a journal's average article is cited. Table 2 reports their data for the 21 journals designated as top tier in the present study. The correlation between their ratings and ours for all journals included in both samples reached .86, indicating very high convergence. Finally, the SSCI impact scores strongly corroborate the quality judgments of the department chairpersons we surveyed, with the correlation between the two reaching .78. As the correlations would suggest, there is high consistency in terms of which journals are in the top 21 across all columns of Table 2.

In this study, all articles appearing in the top 21 journals were considered as premier publications. Commentaries, book reviews, and rejoinders

were not included. We treated all 21 top-ranked journals as premier for two reasons. First, individuals who published in the generic top-tier journals also tended to publish in the specialized top-tier journals; the correlation between the generic and specialized top-tier count was .71. Second, dividing the list into finer categories did not improve the empirical results. In fact, it made findings difficult to interpret in regression equations because of collinearity.

A second category of publications was created, consisting of articles, book chapters, papers appearing in published proceedings, and the like, that did not appear in one of the top 21 journals shown in Table 2. We found that a fine-grained categorization of these publications into leading practitioner journals, trade journals, emergent journals, and proceedings did not affect the interpretation of results and only succeeded in increasing the complexity of the analysis. Therefore, we assigned all publications (except books) that did not appear in the listed top-tier journals to a second-tier category. The correlation between the publication counts in top-tier and second-tier outlets reached .42, indicating that the two counts were not redundant.

Books, excluding readers and edited volumes, were counted as a third category of publications. We made no attempt to divide books into subcategories (e.g., textbooks and research volumes) because such categories could not be readily discerned from the faculty vitae submitted. Categorization is also a dubious task. For instance, some books, such as Porter's *Competitive Strategy* (1980) and Milkovich and Newman's *Compensation* (1990) are extensively used in classrooms yet also widely cited in academic writings.

Two counts of publications in each category (top-tier, second-tier, and books) were made: one count included publications that appeared during the four years preceding the survey (1984–87) and the other, publications over a person's total career. We used the first count to predict average percentage raises received during the 1984–87 period and the second to predict total salaries.

No adjustment was made for number of authors or order of authorship in the publication counts because we found no acceptable, defensible way to do so. First, it is practically impossible to discern with any degree of accuracy who contributed what to a manuscript. The given order of authorship is not always a good indicator of relative contributions. For instance, the names of younger faculty members and doctoral students tend to appear at the end. Amount of effort, rather than conceptual input, may determine an order of authorship, or authors may decide to list their names alphabetically. Second, and perhaps more important, adjusting credits for a publication on the basis of authorship order or number of authors may distort the actual value of the work. Diamond (1985) found fewer citations to single-author articles than to multiple-author articles, suggesting that article quality may be a positive function of number of authors. Nudelman and Landers (1972) and Long and McGinnis (1982) reported that other academics accorded similar credit to each author of a paper, indicating that colleagues do not appear to discount multiple authorship.

Teaching performance. It was not feasible in this study to obtain independent measures of teaching performance for each individual in the sample, such as actual copies of teaching ratings, annual reviews by department chairpersons, and peer evaluations. In most cases, these are not publicly available, and different forms of evaluation are used at different institutions. As a compromise, we asked respondents to report their typical student ratings, indicating students' perceptions of the individual's effectiveness as a teacher, and the administration's assessment of their classroom performance. Each of these was reported on a separate scale ranging from 1, "top quartile of college," to 4, "lowest quartile of college."[1] Because these measures were correlated at .86, we used an average of the two to assess teaching performance. Although part of this correlation may be attributable to method variance, it is consistent with findings of previous studies showing that administrators rely almost exclusively on student ratings to evaluate teaching performance (Cohen, 1986; Marsh, 1984).

It is not feasible within the page constraints of this article to review the large literature on student ratings of teaching. There are at least 1,500 articles and books on the subject. Several excellent reviews of this material can be found in Marsh (1984, 1987), Feldman (1977, 1992), Miller (1987), and Cashin (1990). Although the value of student ratings of faculty is still controversial, the available evidence suggests that they show high interater reliability (Cashin & Perrin, 1978), high stability (Marsh & Overall, 1979; Overall & Marsh, 1980), high generalizability across courses (Bausell, Schwartz, & Purohit, 1975; Gillmore, Kane, & Nacarato, 1978; Hogan, 1973), relatively high correlations with external achievement measures (Cohen, 1981, 1986), and high correlations with colleagues' reviews (Kulik & McKeachie, 1975) and alumni ratings (Braskamp, Brandenberg, & Ory, 1984). Research also suggests that there is a low or no relationship between students' ratings and their grade point averages (Feldman, 1976), class size (Feldman, 1984), the time of day when a course is taught (Aleamoni, 1981), instructor's faculty rank (Cashin & Slawson, 1977), and instructor's grading practices (Howard & Maxwell, 1980, 1982). Cashin concluded that "in general, student ratings tend to be statistically reliable, valid, and relatively free from bias, probably more so than any other data used for faculty evaluation" (1990: 3).

Job moves. This variable was defined as the number of permanent changes in school affiliations each respondent had made since obtaining a doctoral degree.

Control Variables

As noted earlier, we included several control variables that may affect faculty pay.

Gender was a dummy variable, with 0 for woman, 1 for man.

[1] For student ratings, the mean was 1.61 (s.d. = .82); for administration assessment of teaching performance, the mean was 1.59 (s.d. = .80).

Subfield was originally recorded in terms of six categories: organization behavior, human resource management, strategy-policy, production-operations, labor relations, and other. We converted the categorizations into a dummy code, with 1 for strategy-policy and 0 for all other areas, for two reasons. First, a large number of respondents listed both human resource management and organizational behavior as their major area. Many respondents also marked labor relations in addition. Over half the faculty members indicating "other" also listed at least one other area. Less than 4 percent listed the production-operations area. Second, at the time of the survey (1988), conventional wisdom held that universities were willing to pay a premium for people holding doctorates in strategy because of a shortage of faculty in that area and American Association of Collegiate Schools of Business (AACSB) accreditation rules requiring that business policy be taught as part of curricula.

An individual's career stage was measured in terms of several highly intercorrelated, time-based demographic variables known to affect pay levels for faculty. These include rank, tenure, number of years since the terminal degree was awarded, age, and years of experience at the present institution. A factor analysis of these variables indicated that they all loaded very highly on a single factor.[2] We therefore calculated a score by standardizing individuals' responses to each of the five variables and averaging these into a composite index. The higher the score on this variable, the further along a person was in his or her career in terms of time investment.

Institutional funding source was measured by a dichotomous variable rated 0 if a school was privately funded and 1 if it was publicly funded.

Highest degree offered was measured by a variable with a value of 1 if the school offered a doctoral degree in management and 0 if it did not.

Unionization was coded as 1, its absence as 0.

School quality was more complex to define than the other institutional characteristics because it is a much more abstract, ambiguous, and controversial construct. We created a composite quality index for each school based on six separate assessments of undergraduate business programs, M.B.A. degrees, and doctoral programs in management obtained from multiple sources. The Appendix briefly describes these assessments.

All six quality ratings for each school were factor-analyzed via a principal axis method (see the Appendix). This analysis showed that these measures are highly intercorrelated; with only one factor's eigenvalue exceeding 1.0. All quality measures loaded highly on this one factor, with loadings ranging from .58 for Niemi's (1988) rating of management departments to .92 for Gourman's (1987b) ranking of doctoral programs in management. Most factor loadings exceeded .70, suggesting that developing a composite quality

[2] We calculated a principal axis factor analysis. The eigenvalue for the factor reached 3.38, with 67.6 percent of the variance explained. Factor loadings were as follows: .85 for rank, .79 for tenure, .94 for years since Ph.D. was awarded, .74 for age, and .78 for experience.

index for each school was warranted. Thus, we calculated an index by standardizing each of the six quality measures and averaging them into a composite score.

State household income was the median yearly family income in the state in which a university was located. We obtained data from the 1988 Survey of Current Business by the U.S. Department of Commerce. This is a conventional measure of the economic conditions and living standards in a particular region.

Cost of living was obtained for each university's metropolitan area from the Intercity Cost of Living Index prepared by the American Chamber of Commerce Researchers Association and published in *Places Rated Almanac* (Boyer & Savageau, 1988).

Analysis

All hypotheses were tested via hierarchical multiple regression analysis. Because academic (9-month) and calendar (12-month) yearly self-reported salaries were highly correlated (.91), we used the former as the dependent variable because it is the most standard way of reporting faculty pay. We calculated the first set of regression equations for the total sample, with average annual percentage raises (1984–87) and nine-month salary as dependent variables. This analysis tested the statistical significance and magnitude of the regression coefficients for top-tier publications (Hypothesis 1), second-tier and other nonrefereed publications (Hypothesis 2), citations (Hypothesis 4), teaching performance (Hypothesis 6), and number of previous institutional affiliations (Hypothesis 11). The control variables were entered first, followed by the performance measures and then by the institutional changes variable. The last variable was entered separately in step three because the underlying logic for Hypothesis 11 is that the market exerts an exogenous and unique effect on faculty pay, over and above that of observed performance. Therefore, this procedure provided a more appropriate and conservative test of Hypothesis 11.

Conditional hypotheses concerning top-tier publications (Hypotheses 3, 5, 7, and 12) were tested via moderated regression analysis, in which we entered the cross-product terms pertinent to these hypotheses as a last step in the regression equation for the total sample. We also conducted a separate hierarchical regression analysis with subsamples to examine differences in the predictors of faculty pay for those below and above the median in top-tier publications (Hypotheses 3, 5, 7, and 12); those in doctorate-granting and other institutions (Hypotheses 8 and 9); and those in private and public universities (Hypothesis 10).

RESULTS

Table 3 gives the correlation matrix. As can be seen, the highest correlates of annual salary include an individual's total number of top-tier publications ($r = .61$), career stage ($r = .56$), and number of job changes ($r =$

TABLE 3
Correlations and Summary Statistics[a]

Variables	Means	s.d.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1. Gender	0.84	0.37																			
2. Subfield	0.28	0.45	.15																		
3. Career stage	0.03	0.85	.25	−.01																	
4. Job moves	0.66	1.07	.08	−.00	.19																
5. School quality	0.03	0.73	−.02	.06	.04	.06															
6. Private school	0.69	0.58	.03	.06	.07	.01	.21														
7. Ph.D-granting school	0.67	0.47	−.01	−.00	.06	.13	.66	.16													
8. Unionization	0.20	0.40	−.10	−.04	.02	.01	−.27	.17	−.07												
9. Cost of living	0.00	1.00	.01	.05	−.12	.06	−.03	−.24	.13	−.02											
10. Median yearly family income	25,112.00	2,924.00	.02	−.04	−.02	.00	−.03	−.13	−.09	.06	.23										
11. Teaching evaluations	1.60	0.79	.05	−.01	.05	.25	.08	−.03	.04	−.12	−.07	−.02									
12. Citations	8.36	24.51	.10	.03	.10	.21	.10	.07	.04	−.12	.12	−.09	.04								
13. Top-tier publications, 1984–87	0.93	1.20	.11	−.06	.18	.46	.23	−.02	.29	−.14	.14	.09	.25	.23							
14. Second-tier publications, 1984–87	0.48	0.52	.05	.01	.09	.13	−.05	.02	.08	−.08	−.08	.05	.16	.07	.31						
15. Books, 1984–87	0.12	0.21	.12	.12	.08	.09	.12	.05	.01	.05	.11	.17	−.05	.03	.20	.09					
16. Total top-tier publications	7.61	12.23	.13	−.04	.38	.49	.16	.03	.28	−.01	.05	.08	.16	.17	.63	.14	.24				
17. Total second-tier publications	9.35	10.73	.11	.01	.34	.19	−.00	.08	.11	.00	−.11	.07	.12	.06	.23	.75	.17	.42			
18. Total books	1.49	2.79	.13	.09	.27	.17	.10	.18	.11	.11	.08	.16	−.03	.05	.18	.09	.76	.55	.36		
19. Average annual raise, 1984–87	3.61	1.27	.14	.01	−.22	.32	.17	−.10	.19	−.20	.23	.06	.11	.11	.45	.08	.16	.25	−.04	.08	
20. Nine-months salary, 1988	48.38	4.68	.17	.06	.56	.53	.29	.00	.31	−.07	.06	.09	.17	.24	.55	.19	.20	.61	.34	.34	.43

[a] $N = 353$; r's $> .08$ are significant at $p < .05$; r's $> .12$ are significant at $p < .01$; r's $> .16$ are significant at $p < .001$.

.53). The correlations between the remaining performance measures and annual salary are much lower, with the differences in magnitude being statistically significant at $p < .01$ (r's $= .34$ for second-tier publications, .34 for books, .24 for citations, and .17 for teaching evaluations). In general, the correlations for average annual percentage raises are lower than those for salary, suggesting that merit pay is less predictable than total salary. This difference is not too surprising, given the large amount of research showing that many nonperformance issues influence the size of merit pay increases, such as the position in a salary range, the time since a last increase, budgetary allocations, and pay relationships within departments or between units (e.g., Lawler, 1990). Although the coefficients are lower, the correlation pattern for average percentage raises is similar to that for annual salary. The main performance correlate for raises is number of top-tier publications in 1984–87 ($r = .45$), with books (.16), teaching evaluations (.11), and second-tier publications (.08) following far behind; the differences between the first and each of the last three correlations are significant at $p < .01$.

The correlation matrix suggests that faculty members who publish top-tier articles also tend to publish second-tier articles ($r = .42$) and books ($r = .55$), yet these performance measures are clearly not redundant. The correlation between top-tier publications and teaching evaluations is statistically significant but low ($r = .16$). Finally, it is interesting to note that the highest correlate of job moves is top-tier publications (.49), with teaching evaluations (.25), citations (.21), second-tier publications (.19), and books (.17) following far behind; the differences between the first and each of the last four correlations are significant at $p < .01$.

Results of the regression equation for the determinants of annual raises appear in Table 4. We excluded faculty members who had changed affiliations during the four-year period ($N = 19$) from this analysis since its focus was on annual pay allocations for individuals who remained in one institution. As can be seen in the first two columns of Table 4, the only performance factor that reaches statistical significance is top-tier publications ($\beta = .44$, $p < .001$). This finding supports Hypotheses 1, 2, and 6. Among the control variables, career stage has a negative effect on annual percentage raises ($\beta = -.25$, $p < .01$). Because career stage is positively related to annual salary (last two columns, Table 4), its negative coefficient in the annual raise regression equation suggests that faculty members are subject to a maturity curve similar to that affecting other occupational groups, such as scientists and engineers (Hills, 1989). Maturity curves reflect the relationship between individuals' pay levels and the number of years since their last degrees were obtained; typically, percentage increases in pay are greatest during earlier stages of careers, when base pay is lower, and decline later on, when base pay is higher (Newman, 1989).

Men tend to receive larger annual percentage raises than women ($\beta = .19$, $p < .05$). On the other hand, gender is not significant in terms of annual salary (last two columns, Table 4). This inconsistency may perhaps be attributable to the fact that women tend to have been more recently hired than

TABLE 4
Results of Regression Analyses for the Whole Sample[a]

Variables	Average Annual Raise, 1984–87		Nine-Month Salary, 1988	
	β	t	β	t
Step 1				
School quality	.07	0.57	.16	1.74
Cost of living	.15	1.77	.06	0.94
Gender	.19	2.33*	.03	0.44
Subfield	−.03	−0.38	.06	0.91
Median yearly family income	.03	0.37	.10	1.45
Unionization	−.14	−1.61	−.01	−0.17
Career stage	−.25	−3.05**	.55	8.40***
Private school	−.06	−0.69	−.07	−1.05
Ph.D.-granting school	.14	1.28	.18	2.06*
R^2	.19		.43	
F	3.39***		12.22***	
Step 2				
Teaching evaluations	.01	0.15	.07	1.21
Citations	.00	0.01	.12	2.08*
Top-tier publications	.44	5.15***	.38	4.94***
Second-tier publications	−.05	−0.69	.03	0.52
Books	.09	1.16	−.03	−0.45
R^2	.36		.58	
F	5.12***		13.65***	
Step 3				
Job moves			.29	4.64***
R^2			.63	
F			16.05***	

[a] For raises as the dependent variable, we included only 1984–87 publications (top-tier, second-tier, books) as predictors. Total cumulative publications were used as predictors for the regression equation with nine-month salary as the dependent variable.

* $p < .05$
** $p < .01$
*** $p < .001$

men; they had a mean tenure of three years as compared to seven years for men. Pay compression—a narrowing of pay differentials between senior and junior faculty—thus works in women's favor at the time of hiring, ironing out observed gender differences in salary. But their salaries begin to lag behind those of men once they are in institutions, as the lower annual percentage raises indicate.

Table 4 also shows regression analysis results with salary as the dependent variable (last two columns). Only two of the performance variables reached statistical significance, top-tier publications (β = .38, $p < .001$) and, to a lesser extent, citations (β = .12, $p < .05$). This pattern is consistent with the predictions made in Hypotheses 1, 2, 4, and 6. Number of job changes is an important determinant of faculty salary, indicating that with performance, demographic, institutional, and environmental variables controlled,

willingness to move has a unique, autonomous impact on faculty pay (β = .29, $p < .001$). It alone explains 7 percent of the variance in faculty pay when added last in the regression equation. This finding supports Hypothesis 11. Among the control variables, career stage shows the largest regression coefficient (β = .55, $p < .001$), followed as a distant second by whether an institution granted doctorates (β = .18, $p < .05$).

Table 5 summarizes results of the subsample regression analysis testing all the conditional hypotheses with faculty salary as the dependent variable. Separate regression equations with average annual percentage raise as the dependent variable are not shown because the resulting patterns are very similar to those displayed in the table; these results are available from the authors.

The first two columns of Table 5 show that results differ for faculty members who are above and below the median in number of top-tier publications. This finding is consistent with the results of the moderated regression analysis for the total sample with faculty salary as a dependent variable, in which the interaction terms, entered last, were significant for top-tier by second-tier publications ($\Delta R^2 = .01$, $p < .05$), top-tier publications by teaching performance ($\Delta R^2 = .01$, $p < .05$), top-tier publications by citations ($\Delta R^2 = .02$, $p < .01$), and top-tier publications by job changes ($\Delta R^2 = .02$, $p < .01$).

The data in Table 5 indicate that a strong scholarly record is a necessary precondition if less prestigious publications, citations, and teaching performance are to yield financial returns for faculty members and that the latter have no stand-alone monetary value independent of top-tier publications. These findings, corroborated by the moderated regression results, are consistent with Hypotheses 3, 5, and 7. Table 5 also shows that number of job changes is a significant predictor of faculty salary for those who are below and above the median in top-tier publications, but that the strength of the relationship is greater among the latter (β = .23, $p < .001$, vs. β = .39, $p < .001$). The difference between these two coefficients is significant at $p < .05$, supporting Hypothesis 12. In other words, the financial returns yielded by job changes tend to be greater for individuals with exceptional scholarly records, but it pays for faculty members to move regardless of the quality of their records.

Columns 3 and 4 in Table 5 report the regression analysis results for faculty subsamples in doctorate-granting and non–doctorate-granting institutions. Among the doctorate-granters, the regression coefficients for citations (β = .14, $p < .01$) and top-tier publications (β = .39, $p < .001$) are statistically significant. Among non–doctorate-granting institutions the regression coefficients are significant for both top-tier (β = .37, $p < .001$) and second-tier (β = .16, $p < .05$) publications, but not for citations. This pattern suggests that institutions that give Ph.D.'s are more fastidious regarding the quality and impact of research than other institutions. Although second-tier publications have a stand-alone value among non–doctorate-granting institutions, and citations do not play a role in their administrations' pay deci-

TABLE 5
Results of Regression Results Analyses for Subsamples[a]

Variables	Individual's Number of Top-Tier Publications[b]: Below Median	Above Median	School's Doctoral Status[c]: Does Not Grant Ph.D.	Grants Ph.D.	Funding Source[d]: Private	Public
Step 1						
School quality	.02	.10	.17	.08	.10	.04
Cost of living	.12	−.02	−.14	.06	.07	−.04
Gender	−.01	.09	.01	.04	−.00	.04
Subfield	.09	.09	.11	.05	.08	.05
Median yearly family income	.01	.16*	.11	.10	−.07	[.16**]*
Unionization	.05	−.06	−.07	.01	−.05	−.02
Career stage	.47***	.53***	.35***	.60***	.53***	.53***
Private school	−.06	−.09	−.02	−.10		
Ph.D.-granting school	.26***	.16*			.34***	.20***
R^2	.29	.39	.20	.40	.48	.38
ΔF	7.93***	11.03***	3.22**	19.30***	12.69***	16.88***
Step 2						
Teaching evaluations	−.00	[.17**]***	−.13	[.13**]**	.07	.06
Citations	.01	[.16**]***	−.01	[.14**]*	.12	.06
Top-tier publications			.37***	.39***	.50***	.37***
Second-tier publications	−.06	[.16**]**	[.16*]*	−.03	.07	.04
Books	.16	.02	−.04	−.04	.00	−.03
R^2	.31	.47	.32	.49	.58	.51
ΔF	1.49	5.70***	4.67**	9.75***	6.09***	11.73***
Step 3						
Job moves	.23***	[.39***]*	.31***	.29***	.22***	.29***
R^2	.35	.59	.44	.60	.68	.57
ΔF	12.70***	44.31***	21.28***	64.46***	29.83***	31.06***

[a] Numbers appearing in brackets denote that the difference in the regression coefficients between the two samples for that variable is statistically significant. The probability value of the difference is shown outside the top right-hand corner of the bracket. ΔFs are the F-values associated with changes in the R^2 as blocks of variables are entered into the equation.

[b] Four or more top-tier publications placed an individual above the median.

[c] For no Ph.D., $N = 113$; for Ph.D., $N = 236$.

[d] For private, $N = 117$; for public, $N = 233$.

sions, these schools clearly place a higher priority on top-tier articles for salary allocation purposes. Therefore, these findings provide mixed support for Hypothesis 8. Contrary to Hypothesis 9, non–doctorate-granting institutions reward faculty members less for teaching performance; in fact, the relationship between teaching performance and faculty pay is slightly negative in this subsample ($\beta = -.13$, n.s.).

Finally, Table 5 shows that funding source per se does not make much difference in the obtained results. Contrary to Hypothesis 10, the regression coefficient for teaching performance is not statistically significant in either private or public schools. As in the other subsample analyses, number of top-tier publications is the primary predictor of faculty pay in both private and public institutions.

Another way to interpret these findings is in terms of the marginal and absolute financial influence each variable has on current pay and will have on future pay if the relationships found in the data hold in the future. Table 6 shows the estimated monetary value of the variables that most consistently predict faculty pay (top-tier publications, citations, and job changes), with all other variables controlled. We made two sets of calculations for each predictor: (1) the marginal dollar value attributable to unit changes in the predictor, obtained directly from the unstandardized regression coefficient, and (2) the average absolute current dollar value, consisting of the unstandardized regression coefficient for a given predictor, multiplied by the mean score of that predictor. Next, we calculated the future values of the marginal and absolute dollar figures for each predictor. The future value was estimated on the basis of a compounded interest rate of 9 percent for a period of 23 years (1988–2011) for a typical faculty member who was 42 years old in 1988 and who planned to retire at age 65 in 2011. In addition, we calculated the cumulative annuity for 23 years at a 9 percent interest rate, assuming that a given individual retains the differential salary attributed to that predictor in 1988 as part of base salary for the remaining 23 years.

As can be seen in Table 6, each top-tier article published by a faculty member had a value of $1,210 in 1988, a future value of $9,589, and a cumulative annuity of $84,134 in 2011. On the average, the absolute dollar value of all top-tier publications in a faculty member's portfolio amounted to

TABLE 6
Financial Value of Selected Faculty Performance Measures

	Marginal Dollar Value			Average Absolute Dollar Value		
Variables	1988	Future Value, 2011	Cumulative Annuity, 2011	1988	Future Value, 2011	Cumulative Annuity, 2011
Top-tier publications	$ 1,210	$9,589	$84,134	$9,209	$72,978	$640,305
Citations	192	1,522	13,350	1,605	12,719	111,596
Job changes	10,520	83,368	731,476	6,922	54,855	481,311

$9,209 in 1988; the future value was $72,978, and the cumulative annuity in 2011, $640,305. Citations have a marginal value of $192 in 1988, a future value of $1,522, and a cumulative annuity of $13,350 in 2011. The average absolute dollar value for citations reached $1,605 in 1988; the future value was $12,719, and the cumulative annuity, $111,596. By far, number of job changes produces the largest monetary gains. The marginal dollar value of each move was $10,520 in 1988; the future value, $83,368; the cumulative annuity, $731,476. On the average, the per capita absolute dollar value of all job moves reached $6,922 in 1988, with a future value of $54,855 and a cumulative annuity 23 years later of $481,311. In summary, the financial returns for top-tier publications and job changes are not just statistically significant, as demonstrated in the analysis reported earlier, but also have a dramatic impact on a faculty member's income, other things being equal.

One important question we have not addressed so far is the extent to which the relationship between number of top-tier publications and faculty pay is linear. If the relationship is nonlinear, the regression coefficient for this variable would tend to be attenuated. Some research in economics suggests that the marginal return for publications decreases after a certain point. Katz (1973), for example, found that no net financial gains accrued to economists after 32 publications. To check for this possibility, we evaluated the incremental monetary value of top-tier publications; results appear in Table 7. With one exception, the between-7-and-10-publications category, the mean adjusted salary increases steadily, with all other variables controlled. For instance, at the top end of salaries the adjusted deviations from the mean are $11,764 for those with 26 or more publications and $8,143 for those with 16–25, $4,380 for those with 11–15, and $1,177 for those with 7–10. The results of an F-test for deviation from linearity were nonsignificant. This finding suggests that the relationship between number of top-tier publica-

TABLE 7
Incremental Monetary Value of Top-Tier Publications[a]

Number of Top-Tier Publications	N	Percentage	Mean Actual Salary	Mean Adjusted Salary	Adjusted Deviation from Mean Salary[b]	Adjusted Incremental Gain
None	104	29.5	$41,830	$44,056	$−4,319	
1–2	60	17.0	42,583	45,516	−2,859	$1,460
3–4	44	12.5	47,286	46,886	−1,489	1,370
5–6	30	8.5	51,462	51,299	2,924	4,413
7–10	30	8.5	51,001	49,552	1,177	−1,747
11–15	26	7.4	55,002	52,755	4,380	3,203
16–25	31	8.8	58,417	56,518	8,143	3,763
26+	28	7.9	68,416	60,139	11,764	3,621

[a] Results of an F-test for deviation from linearity were not significant.
[b] Mean salary = $48,375.

tions and a faculty member's pay is monotonic in the management field, at least within the range of publications observed in this study.

In summary, our results show that the main predictor of faculty pay is the number of publications appearing in top-tier journals an individual has written. Teaching performance, sheer volume of publications, and citations to their work tend to be rewarded for individuals with exceptional research records in premier journals. As a whole, doctorate-granting institutions place more emphasis on performance than teaching institutions, even for teaching. The number of previous institutional affiliations an individual has had has an independent impact on faculty pay, with the influence being greater for individuals with strong research records.

DISCUSSION AND CONCLUSIONS

Although a considerable number of studies have been devoted to examining the determinants of faculty pay, that research has been largely conducted without the benefit of any theory to explain findings. In the present study, we applied and extended agency theory to improve conceptual understanding of the determinants of faculty pay.

This study suggests that agency theory can be meaningfully used to analyze internal control relationships between allocators (principals) and those receiving allocations (agents). Since its inception, agency theory has been applied almost exclusively to bilateral relations between top executives (as agents), and firm owners (as principals), and behavioral processes within firms have been ignored. This study and Eisenhardt's (1988) study of sales personnel confirm agency theory notions that principals may use incentive systems in lieu of monitoring when dealing with nonprogrammable jobs where direct supervision is infeasible or counterproductive because of information asymmetries.

More broadly, this study suggests that agency theory is robust and useful as an explanatory framework for examining monitoring issues or agency problems internal to organizations. Classical writings on agency theory have long hinted at such an ability (e.g., Alchian, 1969; Alchian & Demsetz, 1972; Jensen & Meckling, 1976), yet empirical research based on the theory, conducted mostly in economics and finance, continues to treat the organization as a black box (cf. Baker, Jensen, & Murphy, 1988; Jensen & Murphy, 1990).

Although administrators appear to allocate faculty pay in a way predictable from an agency theory perspective, scholars know little about the extent to which incentive alignment systems actually enhance future performance. However, our findings indicate that such a signaling effect is likely to have a powerful behavioral impact, given the substantial opportunity costs incurred for noncompliance. For instance, we found a 37 percent annual pay differential between the highest and lowest producers of top-tier publications, with all other factors controlled (see Table 6). Furthermore, a substantial body of research has shown that faculty members see material rewards,

particularly pay, as very important and that the distribution of rewards is a major source of social control in science (Reskin, 1977).

This study also suggests that agency theory can be used to examine the relative importance of various outcomes within agency contracts. As expected, performance outcomes (top-tier articles) that most closely align the interests of principals and agents were found to have the greatest impact on pay. The number of top-tier publications a faculty member has authored is an attractive measure of performance from an agency theory perspective. The measure is based on outcomes, making it efficient because it avoids monitoring problems; it is also easier to use than other measures, such as total publications, in that it is less information-intensive. With top-tier publications, a principal merely has to count publications that can be assumed to be of high quality. In contrast, if total publications are used, the principal must assess the publications' quality, which requires reading and understanding them—a more costly and uncertain process.

Contrary to earlier reports (e.g., Konrad & Pfeffer, 1990), our results indicate that teaching does have an effect on faculty pay. However, that effect is absent for individuals with poor research records. We interpret this finding to mean that principals rate research over teaching for faculty pay allocations because of the former's relationship with institutional prestige, its high visibility in the academic labor market, and its ability to attract scarce resources. There is also much less agreement as to how teaching performance should be assessed than there is for research. This discrepancy is important because an agent needs to accept a principal's pay criteria as legitimate in order for the agency contract to be effective (cf. Eccles, 1985). Given the perceived uncertainties surrounding the measurement of classroom performance, and the high costs of information gathering and uniform policy enforcement entailed in comprehensive monitoring of teaching behaviors, principals may use objective outcome measures, like number of top-tier publications, as a conditional "hoop" that faculty members must pass before more controversial indicators of teaching effectiveness begin to count. Katz reported that most faculty members and administrators expressed a "great mistrust of student ratings" (1973: 472). Similar feelings were uncovered in our own research. Almost 70 percent of the respondents agreed with the statement that "teaching ratings by students do not reflect true teaching performance; they are basically a popularity contest." Administrators may use other approaches to assessing teaching performance, such as class observation, evaluation of syllabi and course materials, and alumni surveys, but these tend to be less practical, more intrusive, more vulnerable to political manipulations, and more time consuming than student ratings. Furthermore, it is debatable whether they add value to the use of teaching ratings alone (Cashin, 1990).

Thus, it may be that given all the ambiguities surrounding measuring teaching performance and the lack of social consensus about it, principals will only reward teaching performance when a faculty member shows research productivity by publishing in top-tier journals, a measure of perfor-

mance that enjoys extensive normative consensus and convergence. In addition to information efficiencies, this conditionality may produce the perception of procedural justice, reducing potential agency costs in terms of faculty grievances, interpersonal conflict, and faculty attrition, and protecting the collegial reputation of a school in the external labor market.

A caveat is necessary regarding the teaching performance measure used here. Not only were we dealing with student ratings of teaching performance (which are questioned by many, as noted earlier), but the ratings we used were also self-reported. Social desirability bias may have produced inflated self-reports, and reduced variance of the teaching performance measure would have resulted. This problem may be present here, but our data suggest that there is still substantial variance in the self-report teaching performance scales: standard deviations were .82, .80, and .79 for each of the two individual items and the average composite score, respectively. Furthermore, we compared means on the self-report measures and an overall teaching effectiveness scale ranging from 1 (high) to 5 (low) administered to 4,000 management students rating 200 separate classes in the home institution of the senior author, which has one of the largest populations of management majors in the country. The averages are remarkably similar; the mean was 1.60 for the average teaching composite score in the present sample and 1.63 for the overall teaching effectiveness scale in the comparison sample. Nevertheless, some caution in interpreting the meaning of these measures is still warranted.

An alternative explanation of the findings in this study—one at odds with agency theory—that we considered is that faculty members find it in their self-interest to publish in top-tier journals and therefore, faculties influence administrations to base pay decisions primarily on research outcomes, instead of the other way around. We rejected this interpretation because we recognized that although some faculty members would publish in top-tier journals independent of pay incentives (and would favor being rewarded mainly on research outcomes), others, probably a majority, would find it in their self-interest to avoid doing scholarly research and would instead use their time for other activities less beneficial to their universities. Casual observation suggests that conflicts of interest are not uncommon, particularly for tenured faculty members, who might want to engage in extensive consulting, spend minimal time in the office, and devote their energies to nonacademic activities. Of the respondents to our survey, 11 percent were "strongly satisfied" and 58 percent were either "dissatisfied" or "strongly dissatisfied" with the statement that "when it comes down to it, publishing is the overwhelming criterion for faculty pay decisions"; in contrast, 80 percent agreed that this statement was true. For faculty who would avoid doing scholarly research, incentive alignment mechanisms are necessary.

Note that the data used in this study were collected at a time (1988) that was preceded by 15 years of rapid expansion in business schools and an acute shortage of management faculty with doctorates. These market condi-

tions probably increased the premium observed in the present study attributed to a job change independent of performance. One could argue that a demand-supply imbalance (as was the case during the period of this study) promotes a greater across-the-board financial return for job changers that compete in a homogeneous faculty market. The homogeneous faculty market consists of those individuals who may have the necessary credentials, normally a Ph.D., but whose research records tend to be modest and who cannot be easily differentiated from one to the next. As supply exceeds demand (as is the case in the early 1990s) one would expect that the autonomous effect of a job change on pay for individuals competing in the homogeneous faculty market should decline or perhaps even disappear. In other words, when principals face a large pool of undifferentiated applicants, there is no need to pay a premium to acquire the services of a particular agent. For the select group of faculty competing in a differentiated or heterogenous market, consisting of those with exceptional research records, the positive interactive effect of performance by job changes on pay is more likely to be insulated from market gyrations. High entry barriers and external visibility by publishing in top-tier outlets allows these agents to continue to command a premium as principals compete among each other for this scarce talent.

The finding that women received smaller merit increases than men when we controlled the performance variables is noteworthy. Earlier studies by Ferber and Kordick (1978) and Tuckman (1979) reported similar findings. Pfeffer and Konrad (1991) provided a possible explanation for this phenomenon, suggesting that women may have less power and influence than men in universities—they may, for example, receive fewer summer research grants or more unattractive teaching assignments—which may result in lower pay increases.

Several limitations of this study are worth mentioning and should be addressed in future research. First, influences other than pay are likely to play a crucial role in a faculty member's performance; individual factors include doctoral training, the intrinsic psychological satisfaction gained from teaching students and serving as mentors to others, and receiving public recognition from colleagues on a national or international basis; environmental influences on performance are peer norms emphasizing research and publications and selective recruitment of individuals into faculty positions. Second, we did not examine each individual's stream of research, which may affect how others view the quality of a person's total research program. Finally, internal and external service was not assessed. Service contributions may affect faculty pay both directly, if they are explicitly considered in the appraisal process, and indirectly—such contributions may create a positive image, with the individual seen as a good organizational citizen, or a negative halo, with the individual seen as a bad colleague; and both images may color performance assessments of teaching and research.

Findings did not support the hypothesized relationship between the doctoral status of an institution and the relative emphasis placed on teaching and research. Doctorate-granting institutions rewarded teaching more than

non–doctorate-granting schools; the latter primarily rewarded top-tier publications but appeared to be less concerned with quality, as evidenced by a disregard for citations and a willingness to compensate faculty for second-tier publications. We can speculate on a number of reasons for these findings. First, faculty members in doctorate-granting schools teach a large number of graduate-level classes, including many specialized, information-intensive courses for M.B.A. and Ph.D. students. Principals in these institutions may consider classroom performance as another manifestation or an extension of an agent's research program. In non–doctorate-granting institutions, faculty members tend to teach more basic courses of a general nature; principals may view these as less amenable to the dissemination of a teacher's research. Interestingly enough, the correlation between teaching performance and number of top-tier publications is significantly greater ($p < .05$) in doctorate-granting institutions than in other schools ($r = .36$ vs. $r = .03$). Second, doctoral institutions may feel less pressure to prove themselves in the research arena because they are already well established. In fact, principals in these schools may feel compelled to reward teaching performance to ensure that agents who believe they are in a "publish or perish" environment do not totally neglect teaching. Finally, institutions that give no doctorates generally have fewer resources and pay less (see Tables 4 and 5) than doctorate granters. The former are thus less able to afford a dual compensation strategy that rewards both teaching and research. To compete nationally and to enhance institutional prestige, principals may target their scarce dollars toward attracting and retaining strong researchers, who enjoy high mobility. At the same time, these principals are less discriminating or more lenient in their evaluation of research because they cannot provide the support (summer grants, light teaching loads, and assistants) necessary to enable faculty members to produce a large amount of high-impact, top-tier research. Attempts to enforce research standards similar to those doctorate-granters use could prove to be discouraging to agents who may feel that the agency contract is unfair, provoking an exodus of the most marketable faculty to competing institutions, and a negative social climate, with its associated agency costs.

Another hypothesis that was not supported is that privately funded universities are more likely than publicly funded universities to reward faculty for teaching performance. The reasons for this finding are unclear but may have something to do with the relative nature of the teaching performance measure used here. It is very conceivable—and anecdotal evidence attests to this—that poor teachers cannot survive for long in a private school that depends on students as customers for its own survival. Private schools may have much higher standards for judging acceptable teaching performance than public universities. Thus, we may be facing "apples and oranges" when comparing internal measures of teaching performance in private and public schools; the lowest quartile in a private school may be better, on the average, than the highest quartile in a public school. Therefore, failure to detect differences in the relationship between teaching performance and

pay by funding source may not necessarily imply that principals accord teaching equal priority in the two types of institution.

In conclusion, agency theory provides a useful framework with which to examine the relationship between pay and performance for university faculties. It is not difficult to visualize further research applications of agency theory to the reward systems in other important areas, such as science, engineering, middle management, and consulting, all of which contain nonprogrammable jobs that require a large degree of discretionary judgment on the part of agents and pose potential conflicts of interest that may result in significant agency costs.

More broadly, agency theory is a powerful conceptual framework for the growing intraorganizational research on compensation strategy that has been largely based on loosely specified contingency notions (see the reviews by Gomez-Mejia [1992] and Gomez-Mejia & Balkin [1992]). Agency theory offers a set of analytical tools and concepts, including information asymmetries, task programmability, divergence of interests, complementarity of monitoring and incentive alignment, and contrasting process and outcome measures, that researchers can use to predict the conditions under which particular types of compensation strategies (individual vs. aggregate incentives; fixed vs. variable pay; subjective vs. objective performance measures) are most appropriate for particular employee groups.

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APPENDIX
School Quality Indicators and Factor Analytic Results

Stahl, Leap, and Wei (1988)

These authors ranked U.S. management departments in terms of publication count using a comprehensive list of leading management journals. If a school was in the top 50, we coded it as 1; if not, as 0. The factor loading for this measure was .80.

Niemi (1988)

This report ranked U.S. management departments on the basis of articles contributed to the *Academy of Management Journal* and *Academy of Management Review.* If an institution appeared in this list, we coded it 1; if not, as 0 (factor loading = .58). Niemi also ranked research programs in business schools on the bias of the total number of "key journal pages" across all functional areas. If a college was one of the top 50, we coded it as 1; if not, as 0 (factor loading = .77).

Gourman (1987a,b)

The Gourman reports on undergraduate and graduate education are probably the best known and most comprehensive quality ratings of colleges and universities in the country. These reports provide a quality assessment of specific colleges and of departments in each institution. The global ratings are essentially subjective but based on multiple sources of data, including "qualifications and professional productivity of faculty, quality of instruction, faculty research, curriculum, placement of graduates, and library resources" (Gourman, 1987b: 15). We used three separate Gourman rankings—(1) Doctoral programs: The reports ranked practically all accredited management doctorate programs in the country. For each case in our sample associated with a doctoral program (approximately 70%), we assigned the actual Gourman ranking (factor loading = .92). (2) M.B.A. degrees: Because of the large number of M.B.A. programs offered, Gourman only evaluated a selection. Given that it was not feasible to assign an actual M.B.A. ranking to each school in our sample, since many were not specifically rated in the report, we coded those ranked in the top 50 by Gourman as 1 and others as 0 (factor loading = .75). (3) Undergraduate business programs: For the same reasons noted before for the M.B.A. rankings, we coded schools with undergraduate programs ranked in the top 50 as 1, others as 0 (factor loading = .66).

For the factor analysis overall, the eigenvalue was 3.409 and the percentage of variance explained was 56.800.

Luis R. Gomez-Mejia is a professor at the Arizona State University College of Business. He received a Ph.D. degree from the University of Minnesota. His research interests are macro compensation issues, including executive compensation and compensation strategy.

David B. Balkin received a Ph.D. degree from the University of Minnesota. He is an associate professor at the University of Colorado College of Business and Administration. His research interests include compensation strategy and human resource management in high-technology environments.

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ORGANIZATIONAL AND FINANCIAL CORRELATES OF A "CONTRARIAN" HUMAN RESOURCE INVESTMENT STRATEGY

CHARLES R. GREER
Texas Christian University
TIMOTHY C. IRELAND
Oklahoma State University

Correlates of the "contrarian" investment strategy of countercyclical hiring were investigated through the use of regression models that explain variance in four measures of such hiring at the individual company level. Variables positively related to countercyclical hiring include human resource planning efforts focused on avoiding personnel shortages, maintaining a regular age distribution among managers, employee development and career planning, company financial performance, and the quality of applicants hired during downturns. As expected, cost considerations are negatively related to the extent of countercyclical hiring, as is maintaining a regular age distribution among professionals. An unexpected finding is that percentage changes in the employment of managers and professionals are inversely correlated.

"Contrarian" investment strategies, or courses of action that are in opposition to those of most investors at a given time (Downes & Goodman, 1991), have been practiced in the stock market for a number of years (Chan, 1988). However, contrarian thought is relatively new to human resource management. The contrarian human resource management strategy of countercyclical hiring involves selective hiring during downturns or recessions that occur prior to a clear upturn in economic activity. Unlike procyclical hiring, which occurs during periods of strong economic activity, countercyclical hiring involves the stockpiling of talent for future needs. Bright (1976) first mentioned the application of such strategies in hiring as part of the human resource planning experiences of Union Oil; conceptual and exploratory empirical work has further developed the idea (Greer, 1984; Greer & Stedham, 1989).[1] As a component of a company's ongoing long-term strat-

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[1] Greer and Stedham's (1989) survey found 40.4 percent of responding companies practicing countercyclical hiring to some extent. With their survey's response rate of 29.1 percent and (continued)

egies, countercyclical hiring can be used in a number of ways and circumstances to enhance supplies of high-quality, key personnel, and it represents a limited alternative to conventional procyclical hiring.[2]

Countercyclical hiring may also provide a company with a competitive advantage. By engaging in bargain hunting during downturns and hiring talent that would probably not be available during upturns, a company may gain a critical advantage over its competitors. Obviously, countercyclical hiring involves allocating resources differently than conventional wisdom might seem to dictate. However, making the same resource allocations as one's competitors produces no advantage (Henn, 1985; Ohmae, 1988). Accordingly, a human resource strategy should focus resources on key opportunities (Henn, 1985), and in recent years there has been a recognition that human resources can be a key to competitiveness (Porter, 1985; Schuler & MacMillan, 1984; Ulrich, 1986).

Even in the context of downsizing and decline, which are frequently related to economic downturns (Perry, 1984), companies need to nurture core competencies, such as unique marketing or production skills, that have provided competitive advantages (Hitt & Keats, 1992). It may be especially critical to hire, retain, and develop employees who have skills that can enable companies to acquire the new competencies required for survival in changed environments (Behn, 1988; Ferris, Schellenberg, & Zammuto, 1984; Hitt & Keats, 1992). In this context, selective countercyclical hiring may provide restructuring and downsizing companies with the means of obtaining the high-quality employees that they need for survival. Even with retrenchment as one of the components of an integrated survival strategy (Greenhalgh, Lawrence, & Sutton, 1988; Hardy, 1988), it may be advantageous to do some hiring on a countercyclical basis.

As a specific human resource strategy, countercyclical hiring may contribute in a number of ways. One function of human resource strategies in general is to help companies align personnel policies and programs with corporate strategies (Craft, 1988). In effective companies there tends to be a cohesive alignment or configuration of activities with core strategies, but ineffective or declining organizations often lack such alignment (Miller, 1990). Countercyclical hiring can help organizations achieve this alignment. For example, during the 1982 recession in the computer industry, a major manufacturer continued to do some hiring instead of imposing a hiring freeze. As a result, the company was able to maintain an appropriate balance between long- and short-run outcomes in terms of its strategic and tactical views on employment levels (Greenhalgh, McKersie, & Gilkey, 1986). In addition, countercyclical hiring may be particularly helpful in strategy implementation. Having a stockpile or buffer of talented employees may be of

the worst-case assumption that none of the nonrespondents practiced countercyclical hiring, 11.8 percent of the population would have been engaged in the practice.

[2] Use of the term "contrarian" is restricted, in the present analysis, to the unconventional timing of countercyclical hiring.

importance in strategy implementation (Mills, 1985), particularly as technological advances increase the dependence of organizations on highly skilled employees (Schein, 1977). Countercyclical hiring may also help companies reach affirmative action goals by eliminating gaps in the companies' experience distributions of women and minority members caused by curtailment of hiring during downturns. During such periods, highly qualified women and minority members should be less difficult to hire than at other times because of lower demand in the labor market.

This study sought to increase understanding of countercyclical hiring by identifying the relationships between the strategy, organizational characteristics, and financial performance. We defined countercyclical hiring and downturns on an industry-wide basis, since national downturns now occur less frequently than formerly and do not have uniform effects (Rutledge & Allen, 1989). Although the pool of excess labor in industry downturns should be smaller than that in national downturns, there should still be opportunities for firms to engage in countercyclical hiring.

CONCEPTUAL FRAMEWORK

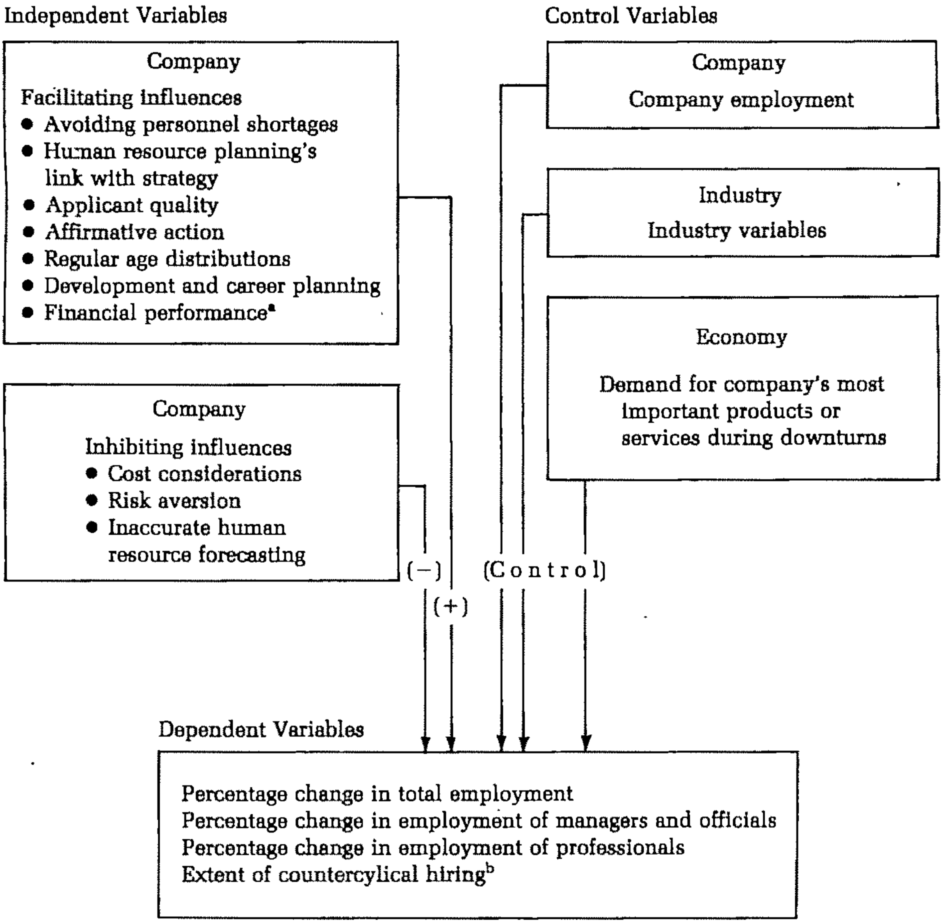
It is instructive to view countercyclical hiring in terms of influences that either facilitate or inhibit its practice. We defined facilitating and inhibiting influences to include both managerial and financial considerations.[3] Facilitating influences include benefits as well as organizational characteristics that act to increase the extent of countercyclical hiring. Inhibiting influences are economic costs and organizational characteristics that act to decrease its extent. We expected the utility of hiring some employees countercyclically to be positive only when inhibiting influences do not exceed benefits. Thus, the utility of countercyclical hiring would be derived from a long-term strategy geared toward investment in human resources. In this framework, there is no assumption that the number of facilitating and inhibiting influences is equal. For example, one or two key cost influences may be important enough to offset multiple, less important facilitating influences. Figure 1 presents the conceptual framework for the company-, industry-, and economy-level variables we studied.

Facilitating Influences

Avoiding personnel shortages. Forecasting shortages of critical personnel and planning for their future supply are basic activities in human resource planning. Companies that can accurately forecast demands for and supplies of personnel should make greater countercyclical hiring investments than other companies because they possess more information on fu-

[3] Whether a variable should be considered as a facilitating or inhibiting influence depends, in some instances, on the sense in which the variable is labeled. We have attempted the most intuitive or unambiguous labeling.

FIGURE 1
Conceptual Framework



[a] The enhanced company performance resulting from countercylical hiring would be expected to enhance financial performance.
[b] This was a subjective measure.

ture needs. Further, human resource planning may be important to the practice of countercyclical hiring in declining organizations. In such companies, planning may result in the hiring of key employees who are critical to core competencies, while those less critical are laid off. Previous research has provided some preliminary evidence that companies that engage in specific planning aimed at avoiding personnel shortages also practice countercyclical hiring (Greer & Stedham, 1989).

Hypothesis 1: The importance of human resource planning for avoiding shortages of qualified personnel will be

positively related to the extent companies practice countercyclical hiring.

Human resource planning's link with strategic planning. When human resource planning and strategic planning are linked, hiring is more likely to serve a strategic purpose. As a result, companies may take advantage of hiring opportunities during downturns. When strategies require very high-quality or highly skilled employees who cannot usually be hired during upturns, countercyclical hiring may be particularly attractive. At the extreme, such links can even result in the formation of strategic plans to take advantage of distinctive human resource competencies. For example, John Deere's recognition of its talent base in factory automation resulted in the creation of a technology division (Dyer, 1983). With stronger links between the human resource and strategy-planning processes, companies should be well positioned to benefit from countercyclical hiring.

Hypothesis 2: The extent to which human resource planning is linked to companies' strategic planning processes will be positively related to the extent to which they practice countercyclical hiring.

Applicant quality. Companies that hire during downturns generally face less competition for high-quality applicants (Bright, 1976; Greer, 1984). The benefits of applicant quality may justify countercyclical hiring from an investment perspective. Talented individuals graduating from colleges during downturn years provide hiring opportunities. Further, the massive layoffs in oil, finance, and defense-related industries of the 1980s and 1990s produced high-quality technical and managerial applicants. In addition to hiring for developmental or replacement needs, employers can pursue a more extreme approach. By hiring applicants of better quality through countercyclical hiring, they can replace lower-quality employees. Not surprisingly, preliminary evidence indicates that applicant quality is the most important factor encouraging countercyclical hiring (Greer & Stedham, 1989). Of course, no applicant quality advantages would be obtained if all companies pursued the countercyclical hiring strategy simultaneously. This disadvantage is not unique to countercyclical hiring but is characteristic of all strategies (Henn, 1985; Ohmae, 1988).

Hypothesis 3: The availability of high-quality applicants during downturns will be positively related to the extent to which companies practice countercyclical hiring.

Affirmative action. Many companies have affirmative action goals of increasing the number of female and minority managers and professionals. Since qualified individuals in these groups are often in short supply, it may be difficult to hire them during economic upturns. Further, hiring only during economic upturns (procyclical hiring) should leave gaps in the compa-

nies' experience distributions of women and minority members. Thus, companies may be expected to pursue countercyclical hiring strategies for women and minorities as a partial solution to those problems.

> *Hypothesis 4: The importance of affirmative action will be positively related to the extent to which companies practice countercyclical hiring.*

Regular age distributions. Concerns over age distributions may also serve as a stimulus for countercyclical hiring as gaps (shortages) or bulges (excesses) in age cohorts may result from discontinuities associated with procyclical hiring (Beer, Spector, Lawrence, Mills, & Walton, 1984; Bright, 1976; Greer, 1984; Hoffman & Wyatt, 1977; McBeath, 1978). Age distribution irregularities are important because bulges in older cohorts reduce younger employees' prospects of advancement to managerial positions. Conversely, age gaps may necessitate implementing accelerated management development programs to deal with shortages of individuals needed to fill higher-level positions. Countercyclical hiring may be particularly important to complement procyclical hiring in companies promoting only from within. When companies do not hire beyond entry level from the external market, steady hiring is required to avoid gaps in age and skill distributions (Beer et al., 1984).

> *Hypothesis 5: The importance of maintaining regular age distributions of employee groups will be positively related to the extent to which companies practice countercyclical hiring.*

Development and career planning. Taking an investment perspective, companies can hire some high-potential employees during downturns and place them in training programs with the expectation that their future productivity will offset the costs of countercyclical hiring. Training assignments are commonly given to employees not needed for production during downturns (Fay & Medoff, 1985). For example, in the late 1970s German employers increased the number of apprenticeship contracts by more than 50 percent, while total employment declined by 6 percent (Lerman & Pouncy, 1990). Training and development may also be needed to enable declining organizations to develop new competencies required for survival (Ferris et al., 1984). Companies committed to development are less likely than others to discontinue such programs during downturns and can more easily accommodate the training of employees hired countercyclically.

> *Hypothesis 6: The importance of development and career planning will be positively related to the extent to which companies practice countercyclical hiring.*

Financial performance. Regardless of the expected future benefits of countercyclical hiring, companies must have sufficient resources to trade present costs for more uncertain future benefits. In general, profitable companies are more likely than poorer performers to have the resources to make

countercyclical hiring investments.[4] Thus, we predicted a positive relationship between financial performance and countercyclical hiring. Eventually, when such effects of countercyclical hiring as high employee quality are realized in a firm's performance, the market should note this performance, and investors should pay more for the firm's stock. Further, to the extent that the market is efficient and recognizes the value of a company's countercyclical hiring investments, expectations of enhanced performance could have some positive effect on the price of the company's stock prior to the realization of the effects of the strategy. However, we did not examine the effects of countercyclical hiring on financial performance because the full effects may not be realized for some time. In addition, countercyclical hiring is usually narrow in scope, so assessing its impact would require the use of finer-grained measures of performance than were available.

> *Hypothesis 7: The financial performance of companies will be positively related to the extent to which they practice countercyclical hiring.*

Inhibiting Influences

Cost considerations. Decline in a company's need for employees should accompany a decline in demand for its goods and services. Obvious financial costs are associated with a strategy of hiring when there is no compelling or immediate demand for additional employees.

> *Hypothesis 8: The importance of costs will be negatively related to the extent to which companies practice countercyclical hiring.*

Risk aversion. Investments in human resources are qualitatively different from investments in physical capital. Although companies can use contractual arrangements to decrease the likelihood of turnover, employees are free to quit before their employers realize any returns to their investments. Further, countercyclical hiring carries with it the risk of selection error, as does procyclical hiring. Thus, there is a risk of hiring employees countercyclically who turn out to be unsatisfactory. Further, investing in the present to provide future returns entails uncertainty, which involves the risk that human resources needs may change and the risk of forecasting when an upturn will occur. Whether the type and level of risk will deter investments in countercyclical hiring was expected to depend on the risk aversion of decision makers. In uncertain environments, risk-seeking strategies may be a means of positioning companies to capitalize on uncertainty (Jauch &

[4] To the extent that countercyclical hiring can be viewed as innovation and slack viewed as a result of prior performance, Bourgeois's (1981) views provide a good analogy. He maintained that a company's success produces resources for innovations that would not receive funding under conditions of scarcity and that slack serves the strategic function of innovation.

Kraft, 1986). Countercyclical hiring may be the type of risk-seeking strategy that enables companies to take advantage of the uncertainty in their environments.

> *Hypothesis 9: The importance of risk aversion will be negatively related to the extent to which companies practice countercyclical hiring.*

Inaccurate human resource forecasting. Companies vary in their human resource forecasting capabilities. Some have little experience in this area and have not developed capabilities, and others have substantial expertise. Further, the accuracy of human resource forecasting varies across industries. For example, highly accurate forecasts have been possible in utilities, but only modest levels of accuracy are possible in high-fashion women's clothing because of fluctuations in the demand for those products and services (Wikstrom, 1971).

> *Hypothesis 10: The importance of constraints on the accuracy of human resource forecasting will be negatively related to the extent to which companies practice countercyclical hiring.*

METHODS

Much of the data for the analysis came from three surveys: a primary survey; a survey of companies responding to the primary survey that provided employment data on managers-officials and professionals, as reported on their Equal Employment Opportunity Commission (EEOC) EEO-1 forms; and a supplemental survey addressing instrumentation issues in the primary questionnaire. We obtained employment data from published sources as well as surveys. Financial performance data came from published sources. The following sections describe the survey samples, questionnaires, published employment data, financial performance data, survey data constraints, and statistical procedures.

Primary Survey Sample

The primary questionnaire sample comprised 500 U.S. companies drawn randomly from the 1987 *Standard & Poor's Register of Corporations, Directors and Executives*. There were three inclusion criteria: (1) absence of inclusion in an earlier survey by Greer and Stedham (1989), (2) size of at least 2,000 employees, and (3) listing on the 1986 Center for Research in Security Prices (CRSP) monthly tape file.[5] These listings were necessary for

[5] Although all companies retained in the sample were listed in the CRSP file, some have been tracked for more years than others, so the amounts of historical data vary. Because downturn years could be determined only from returned questionnaires, we could not determine the existence of financial information a priori.

us to merge financial performance data with the data obtained from published sources and the questionnaire.

The survey was conducted in 1987. However, we asked each company representative to identify a year in which an industry-wide downturn occurred in the company's predominant industry and to give ratings on variables for that year and ratings on some current practice variables. Thus, the downturn years studied varied across companies. We sent questionnaires, addressed by name, to vice presidents for personnel, vice presidents of human resources, and directors of personnel when Standard & Poor's listed the names of the positions' incumbents. When no name was listed, we addressed the survey to a company's vice president of human resources. Those completing the questionnaires included two senior executive vice presidents, 33 vice presidents, two assistant vice presidents, 41 directors, one assistant director, 21 managers, one human resource planner, one manpower planning specialist, one respondent listing a position of "middle manager," and three respondents with no position identification. These responses appeared to have been completed by individuals in sufficiently authoritative positions to be familiar with the information requested.[6]

As is often the case when the organization is the unit of analysis, the response rate was not high. The initial survey and two follow-up surveys of nonrespondents (also conducted in 1987) produced 106 total responses, which resulted in a response rate of 21.2 percent.[7] However, the response rate is representative of studies using an organizational unit of analysis (e.g., Hoskisson & Hitt, 1988; Jackson, Schuler, & Rivero, 1989; Robinson & Pearce, 1988).

To obtain evidence on potential nonresponse bias, we compared the sizes of respondent companies with those of nonrespondents by obtaining numbers of employees listed in the noted Standard & Poor's volume for each responding and nonresponding company.[8] The means for the two groups, 18,457 and 19,286, were not significantly different (t = .22, n.s.). We examined the industrial distributions of companies in the two groups in a second check for nonresponse bias, obtaining primary Standard Industrial Classification (SIC) codes from the Standard & Poor's source noted earlier. No sig-

[6] To assess the impact of position level on responses, we correlated a hierarchical variable with perceived company characteristics, coding all vice presidents, 3; directors and assistant directors, 2; and managers and others, 1. No correlations with any of the other variables collected through the primary questionnaire were significant at $p < .10$.

[7] Two responses reporting only 85 and 450 employees, respectively, were not included in the analysis and are not reflected in the respondent group of 106 companies. We kept three other companies having at least 1,250 employees but fewer than 2,000 in the analysis to conserve degrees of freedom.

[8] Information on the number of employees for one of the nonresponding companies came from Dun & Bradstreet's 1987 *Million Dollar Directory*.

nificant differences between respondents and nonrespondents emerged ($\chi^2 = 9.32$, $df = 6$, n.s. at $p < .10$).[9]

Survey of Employment of Managers-Officials and Professionals

A second questionnaire was distributed in 1990 to all respondent companies that provided downturn year data. To obtain comparable data across companies, we asked respondents to report from the EEO-1 forms the numbers of managers-officials and professionals a company employed in the downturn year it had identified and the year before the downturn.[10] We received a total of 45 questionnaires after follow-up efforts.[11] We also requested total employment data to use as a basis for checking consistency with other employment data. These questionnaire data correlated at .96 ($p < .01$) with the total employment data obtained from published sources. Additionally, we found no significant differences in total employment, as reported in the primary questionnaire, between companies supplying data for managers-officials and professionals and those that did not ($t = .02$, n.s.).

These data were collected with our assurance that the study was not directed toward equal employment opportunity issues. No age or race data were collected, and none of the analyses or results deal with discrimination. We consider companies' emphases on the importance of maintaining regular age distributions and facilitating affirmative action (obtained in the primary survey) to be within the context of lawful managerial actions.

Supplemental Instrumentation Survey

Because many of the issues in the primary questionnaire were relatively narrow and did not involve multiple functional areas, we expected single observers to provide reasonably valid data (Grinyer & Yasai-Ardekani, 1980; Ungson, James, & Spicer, 1985). Nonetheless, a supplemental instrumentation survey was used to determine the extent to which the primary questionnaire's items elicited consistent responses from different managers within the same company and to examine the reliability of the four single-item variables employed in the primary questionnaire. Because instrumentation rather than data generalizability was the focus, the sampling requirements were less stringent in terms of sample size, sampling area, and company size than they were for the other surveys. To increase the response rate, we drew on companies having a substantial presence in the metropolitan area in which one of the authors' institutions was located. As in the primary survey, all companies surveyed were listed in the *Standard & Poor's Register of Corporations, Directors and Executives*. The 53 companies surveyed had

[9] Two of the nine nongovernmental SIC codes were not included in the contingency table because of low cell frequencies.

[10] These data pertain only to U.S. employment and do not reflect worldwide operations.

[11] Written responses were received from 13 other companies; 2 provided data for only part of the years; 2 were otherwise unusable; and 9 reported that data were no longer available.

members in the local personnel association and had more than 500 employees or were listed in one of two local directories as having more than 500 employees in the county.

Two copies of the questionnaire were sent, addressed by name, to each company's senior human resource manager for the local metropolitan area. We asked each human resource manager to have the second copy of the questionnaire completed by another manager or professional in the company who was knowledgeable about the firm's human resource management policies. Among the 22 respondents from the primary addressees were eight vice presidents, two directors, one regional director, five managers, two regional or area managers, one manager of recruitment, one director of organizational development, one supervisor, and one respondent with no position identification. Questionnaires from two respondents were received from 21 companies. We computed correlations between the pairs of respondents for the subjective measure of countercyclical hiring used and each of the subjective independent variables to assess convergent validity.

To determine the reliability of the four single-item variables contained in the primary questionnaire, we employed a test-retest approach.[12] Mitchell (1985) suggests determining test-retest reliabilities for single-item variables on the basis of samples as small as 15 to 20 individuals. We sent a retest questionnaire to the 22 senior human resource manager respondents between 30 to 39 days after receipt of their responses; 19 provided responses to the retest questionnaire.

Primary Questionnaire

The following definition was used in the instructions to questionnaire items pertaining to countercyclical hiring:

> This part of the questionnaire concerns human resource management policies that pertain to managerial and professional personnel. For the purposes of this part, countercyclical hiring is defined as hiring that is conducted by an individual company during downturns in the economic environment of its predominant industry. Specifically, countercyclical hiring will be defined as hiring that takes place during downturns before there is a clear upturn in general economic activity in a company's predominant industry.

Each respondent was asked to indicate the last year in which his or her company's predominant industry experienced a downturn before there was a clear upturn in economic activity. Although we expected the economic situation of each company to be adversely affected by a downturn in its predominant industry, we controlled for individual economic situation with product demand and financial performance variables, which are described

[12] As Jackson, Schuler, and Rivero (1989) noted, the trade-off for the use of multiple redundant items is the potential of discouraging managers from completing questionnaires.

later. Respondents were then asked to indicate the extent of countercyclical hiring during the last downturn and the strength of several influences on their companies' decisions regarding such hiring. As is frequently the case in strategic management research, the use of retrospective data was necessary for several of the variables (Huber & Power, 1985). However, there is evidence that managers can recall organizational decisions over moderately long time periods (Huber, 1985). Published employment data (discussed later) confirmed the respondents' recall of downturn years. The average percentage change in individual company employment levels was virtually zero from the pre-downturn to downturn years ($\bar{x}$ = .20%), and there was a substantial increase ($\bar{x}$ = 6.0%) from downturn to post-downturn years. Total employment in all the responding companies declined by 3.56 percent in the downturn years and increased by 2.15 percent in the post-downturn years. The use of one year for the computation of employment changes appeared to be appropriate since Fay and Medoff (1985) found that an average of four quarters elapsed between normal and trough production levels.

Dependent Variables

Four dependent variables were employed to capture different aspects of countercyclical hiring: percentage change in total employment, percentage change in the employment of managers-officials, percentage change in the employment of professionals, and a subjective measure of the extent of countercyclical hiring. The employment-based measures do not capture descriptions of intended strategies. Instead, they reflect the extent to which employment levels change as a result of companies' policies and actions. Percentage change in total company employment is a coarse-grained measure that can capture countercyclical hiring when applied to a broad range of key employees. Percentage changes in the employment of managers-officials and professionals provide finer-grained measures of countercyclical hiring since the strategy is envisioned as applying to them. Because the limited hiring of key employees may be overwhelmed by layoffs of others deemed less essential for a strategy, the employment variables may not correlate with managers' perceptions of the extent to which their companies practice countercyclical hiring.[13] The subjective measure of countercyclical hiring, which taps high-level human resource managers' perceptions of the extent to which their companies hired during downturns, provides a more explicit measure unaffected by layoffs or utility-driven substitutions.

Percentage change in total employment. Total employment data for companies were obtained for the pre-downturn and downturn years

[13] For example, in the context of a long-term declining market, Hublein, Inc. devised a strategy in 1981 to build marketing excellence by expanding its marketing staff and reducing the number of low-skill employees. Through profits generated as a result of layoffs and other efficiencies in its Brazilian operations, Hublein hired a dozen experienced marketing professionals in the United States, which enabled it to increase market share by 1984 (Henn, 1985).

identified from COMPUSTAT.[14] Employment data unavailable from COMPUSTAT were obtained from *Moody's Bank and Finance Manual*, *Moody's Industrial Manual*, *Moody's Public Utility Manual*, and *Moody's Transportation Manual* or from *Standard & Poor's Register of Corporations, Directors and Executives.* To ensure consistency, we always obtained data for both years reported for a given company from the same source.

Percentage change in employment of managers and professionals. As indicated earlier, a second survey obtained employment data for managers-officials and professionals from companies responding to the primary questionnaire.

Extent of countercyclical hiring. We combined two items to provide a subjective measure of countercyclical hiring. We asked the extent to which the respondents' companies practiced (or emphasized) countercyclical hiring of managerial and professional personnel during the last economic downturn in their predominant industries, using seven-point scales with 1 = little extent (or emphasis) and 7 = great extent (or emphasis). For this variable, coefficient alpha was .84. The correlation of .62 between the ratings of the two respondents from each company in the supplemental instrumentation survey provided support for the convergent validity of the measure.

Retrospective Independent Variables

These variables were composed of items adapted from Greer and Stedham (1989). Modifications enabled the items to be correlated with both percentage changes in employment during downturns and subjective estimates of countercyclical hiring. These items, which pertained to conditions at the time of downturn, were framed in a countercyclical hiring decision context. We did not directly ask respondents to assess the importance of the attributes measured by the variables. Instead, they were asked to recall the extent to which the attributes encouraged or discouraged countercyclical hiring. The items used short item stems, which are described in the discussion of each variable. All items had seven-point response scales, with 1 for "strongly discourage countercyclical hiring" and 7 for "strongly encourage countercyclical hiring." Items making up the inhibiting variables were reverse-coded.[15]

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[14] COMPUSTAT employment data are obtained from either a company's annual report or its form 10K filled with the Securities and Exchange Commission. Some companies report averages, and others report employment at the end of a fiscal year. Fiscal year dates vary depending on a company's reporting policies. In this analysis, we assumed that the size of the sample offset differences in reporting.

[15] Greer and Stedham (1989) categorized these items a priori as either inhibitors or encouragers. Costs, lack of human resource forecasting, inaccurate human resource forecasting, organizational resistance, and risk aversion were designated as inhibitors; the designated encouragers were obvious benefits. Mean values confirmed their classification scheme. As might be expected, the means are skewed toward the discourage-countercyclical hiring end (anchor value of 1) of the seven-point continuum since countercyclical hiring is not widely employed. Nonetheless, all inhibiting items had lower means (<3.0), and all encouraging items had higher

(continued)

Applicant quality. We used two items to ask to what extent higher-quality entry-level and experienced applicants encouraged countercyclical hiring. For this variable, coefficient alpha was .86 and convergent validity was .84.

Affirmative action. We used a single item to determine facilitation of affirmative action. There was insufficient variance to use test-retest correlation to determine reliability. (Ilgen, Nebeker, and Prichard [1981] describe a similar test-retest situation.) Nonetheless, reliability was substantial as 68 percent of the respondents made identical ratings on the test and retest and 84 percent of them provided ratings differing by no more than one point between the test and retest. Convergent validity was .52.

Regular age distribution. We used one item to ask to what extent maintenance of a regular age distribution encouraged countercyclical hiring. As with the affirmative action variable, there was insufficient variance to use test-retest correlation to determine reliability. Nonetheless, 67 percent of the respondents made the same responses on the test and retest, and 83 percent differed by no more than one point. Similarly, the correlational measure of convergent validity provided a negligible coefficient. However, agreement within the pairs of respondents in the supplemental survey was substantial, with 42 percent of the pairs making identical responses on the age distribution variable and 68 percent differing by no more than one point.

Development and career planning. Two items assessed the influence of the facilitation of employee development programs and of career planning. Coefficient alpha was .82, and convergent validity was .61.

Cost considerations. A single item assessed the influence of cost considerations. Test-retest reliability was .78, although convergent validity was .33.

Risk aversion. We used two items to ask to what extent risk-averse decision makers and organizational resistance influenced countercyclical hiring. Coefficient alpha was .65. Although reliability was somewhat lower than desired (Nunnally, 1978), we retained the variable. Convergent validity was .54.

Inaccurate human resource forecasting. We assessed the influence of inaccurate human resource forecasting and lack of forecasting with two items. Coefficient alpha was .83 and convergent validity was .53.

Nonretrospective Independent Variables

The remaining items were not framed as applying specifically to countercyclical hiring. They tapped stable company practices and characteristics at the time of the questionnaire's administration.[16]

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means (>3.0). To simplify the analysis and discussion of results, we reversed the coding scheme for the inhibiting items, so that strongly discourage had a value of 7, strongly encourage, 1.

[16] An item requesting the number of employees was also included. However, the employment data used in correlations and regressions were obtained from the COMPUSTAT tape files and other published sources described earlier.

Avoiding personnel shortages. Two items were used to tap the importance of human resource planning for avoiding shortages of qualified personnel. Seven-point scales were used with these items (1 = very unimportant, 7 = very important). Coefficient alpha was .87, and convergent validity was .58.

Human resource planning's link with strategy. We used two items, one assessing human resource planning's link with strategic planning and one assessing its input to strategic planning. These items also employed seven-point scales (1 = very weakly [or very little input], 7 = very strongly [or very great input]). Coefficient alpha was .92, and the convergent validity was .61.

Financial performance. Financial performance data were obtained from the 1990 CRSP monthly tape files, specifically the common stock monthly return observations corresponding to the downturn year reported by each company.[17] A monthly return for a common stock is defined as the change in the value of the stock over the month per dollar of initial investment. CRSP computed the return by adding the closing stock price at the end of the month, adjusted for any splits, with any dividends received during the month. The price at the beginning of the month was then subtracted from this sum, and the difference was divided by the price at the beginning of the month.

Monthly return observations were converted into annual values by continually compounding the monthly rates of return. Since both external and internal forces determine a company's return, we calculated an excess return measure. Market-adjusted return, constructed by deducting the CRSP market index from a company's annual return, is one acceptable method for measuring excess returns (Brown & Warner, 1985). We used this derived excess return for the downturn periods as a measure of company financial performance. Market-based measures, which have a number of advantages, have been used extensively in strategic management research to measure the impacts on firm performance of such strategic issues as executive succession, planning systems, mergers, and divestitures (Lubatkin & Shrieves, 1986).

Nonretrospective Control Variables

Company employment. Larger firms typically have more slack resources than small firms. With high slack, managers may have more latitude to take advantage of countercyclical hiring opportunities. As a result, company employment may covary with countercyclical hiring; however, the basis for predicting the relationship is not strong. Accordingly, we only used company employment as a control variable. Information on total company employment at the time of the economic downturn was obtained from the COMPUSTAT tape files and other published data sources described earlier.

Industry. Industry may also be related to the practice of countercyclical

[17] Of the 94 companies identifying downturn years, 6 indicated years earlier than 1980. The mean number of years between a downturn and questionnaire administration was 3.39.

hiring. Environmental dynamism affects choice of human resource forecasting techniques (Craft, 1980; Stone & Fiorito, 1986), which in turn may affect forecasting accuracy and ability to pursue a countercyclical hiring strategy. Since profitability also appears to vary by industry (Porter, 1985), the amount of resources available for investment in countercyclical hiring should vary. Likewise, philosophies toward employee development vary across industries (Sonnenfeld & Peiperl, 1988). Because the relationships are difficult to predict, we employed industrial categories as control variables only. Industry data were obtained by asking respondents to classify their companies by one-digit SIC division.[18] For two responses missing this item, we used Standard & Poor's classifications. We then coded dummy variables for industries having ten or more respondents, with 1 for the industry and 0 otherwise. The industries were manufacturing; transportation, communication, and public utilities; and retail trade. Because only manufacturing and retailing contributed significant explanatory power, the remaining industry variable was omitted from the analysis.

Product demand during downturns. We did not assume that economic downturns affected all industries and companies within the same industries uniformly. Companies affected more severely by downturns were expected to practice countercyclical hiring less extensively. Conversely, companies less affected would not be practicing countercyclical hiring in the purest sense. Therefore, it was necessary to control for the cyclical sensitivity of the demand for a company's product. A single item measured the extent to which the reported economic downturn affected the demand for a respondent company's most important product or service (1 = strong positive effect, 7 = strong negative effect). To allow a more straightforward interpretation, we reverse-coded this item. For this variable, test-retest reliability was only .23. However, 37 percent of the respondents' ratings were identical on the test and retest, and 68 percent differed by no more than one point. Further, convergent validity was .69.

Survey Data Constraints

Data for the subjective measure of the extent of countercyclical hiring and some of the independent variables were obtained from the same questionnaire, which introduced the potential for common method variance. However, studies focusing on the organization as the unit of analysis fre-

[18] SIC categories were the following: (1) agriculture, forestry, and fisheries; (2) mining; (3) contract construction; (4) manufacturing; (5) transportation, communication, electric, gas, and sanitary services; (6) wholesale trade; (7) retail trade; (8) finance, insurance, and real estate; and (9) services. We omitted the public administration category. Although two-digit SIC codes are more common in management research, some researchers have used similar coarse-grained measures of industry in strategy-related studies (e.g., Miller & Bromiley, 1990; Weber & Rynes, 1991). As a practical matter, we could not have employed finer SIC categorizations in the analysis because of the prohibitive number of dummy variables required for the equations. Their use was not feasible, given the necessity of preserving scarce degrees of freedom.

quently use questionnaires to obtain data for dependent and independent variables that would otherwise be unavailable. Examples include studies of personnel practices (Jackson et al., 1989), strategy and planning (Pearce, Robbins, & Robinson, 1987), and market orientation (Narver & Slater, 1990). Further, studies based on the individual as the unit of analysis have used a similar approach, such as Gomez-Mejia and Balkin's (1989) examination of compensation strategies.

To empirically address the issue of common method variance, we used Harman's one-factor test (Schriesheim, 1979). The essence of this test is "that if a substantial amount of common method variance is present, either (a) a single factor will emerge from the factor analysis, or (b) one 'general' factor will account for the majority of the covariance in the independent and criterion variables" (Podsakoff & Organ, 1986: 536). Therefore, we performed a principal components factor analysis on the subjective measure of countercyclical hiring and the ten subjective independent variables obtained from the primary questionnaire. We extracted four factors with eigenvalues greater than 1. The first factor was responsible for only 35 percent of the total variation. Hence, it does not appear that common method variance was a problem.

Statistical Procedures

Relationships with each of the four measures of countercyclical hiring were examined with regression models. For each dependent variable, we estimated an initial equation with all the independent variables. Because of the relatively small number of observations and relatively large number of independent variables, we used a stepwise regression procedure to produce more parsimonious models. The stepwise procedure employed a .10 significance-level inclusion criterion. Nested partial F-tests were used as an alternative method of trimming the models (Pindyck & Rubinfeld, 1981); these tests traditionally use a .05 significance-level criterion. We also used a correlation matrix to examine selected bivariate correlations.[19] The correlations generally have more degrees of freedom than regressions because the stepwise regression equations exclude all observations having missing data for any variable, regardless of its retention in the trimmed model.

Because of the need to conserve degrees of freedom in the analysis of countercyclical hiring for managers-officials and professionals, we used a conservative procedure to retain observations for which some data were missing (Tabachnick & Fidell, 1983). Mean values were substituted for missing values and dummy variables coded for the relevant variables to indicate observations carrying such values. Partial F-tests based on equations with and without the dummies indicated no significant impact of the method for

[19] With the stepwise procedure, only observations having no missing data for any of the variables in the full model are eligible for entry. Although variables that enter after the first step may have more observations, only those complete for the full model are used.

handling missing data. Thus, we omitted the dummy variables from the final equations to conserve degrees of freedom.[20]

RESULTS

The correlations appear in Table 1, with summary statistics, and the results of the regression analyses are in Tables 2, 3, and 4, with standardized coefficients.

Percentage Change in Total Employment

The results in columns 1, 2, and 3 of Table 2 pertain to countercyclical hiring as measured by the percentage change in total employment. All three regression equations explain a reasonable amount of variance, with adjusted R^2 values of .20, .19, and .22, respectively. Column 1 presents results for all variables, and columns 2 and 3 present more parsimonious models, including only those variables meeting the stepwise and nested F-test inclusion criteria, which should be less subject to multicollinearity.

The results indicate limited support for Hypothesis 6, as there is a marginally significant, positive coefficient ($p < .10$) for the development–career planning variable in the second equation. All three equations provide support for Hypothesis 7: financial performance has a strong positive relationship ($p < .01$) with percentage changes in employment. There is also support for Hypothesis 8, as cost has significant, negative signs ($p < .05$) in two equations. Contrary to Hypothesis 10, the coefficient for inaccurate human resource forecasting is positive; however, it is only marginally significant ($p < .10$) in one equation. This unexpected result may be due to multicollinearity since inaccurate human resource forecasting has high correlations with regular age distribution (−.54) and risk aversion (.47) and virtually no correlation (.04) with the dependent variable.

Percentage Change in Employment of Managers

Table 3 presents the results for the dependent variable, percentage change in number of managers-officials (columns 1, 2, and 3). The adjusted R^2 values for the equations for managers range between .11 and .22, which indicate some explanatory power. In all three equations for managers, regular age distribution has a positive relationship ($p < .05$ and $p < .01$), as specified in Hypothesis 5, and the bivariate correlation in Table 1 is also positive ($r = .35$, $p < .05$). As Table 1 indicates, of the three employment variables, only the mean for percentage change in managers-officials is negative. The employment data pertain to the mid-1980s; the thinning of middle management ranks during that period may have heightened company concerns about the need to maintain regular age distributions. Further, the negative correlation between inaccurate human resource forecasting and percentage change in managers ($r = -.31$, $p < .05$) implies that with accurate

[20] We could not include dummies for three of the nine variables in the partial F-tests because they were linear combinations of other dummy variables.

TABLE 1
Descriptive Statistics and Correlations[a]

Variables	Means	s.d.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Dependent																			
1. Percentage change in total employment	0.00[b]	0.21																	
2. Percentage change in employment of managers-officials	−0.03	0.14	.26																
3. Percentage change in employment of professionals	0.03	0.37	.02	−.41**															
4. Extent of counter-cyclical hiring	5.75	2.91	.00	−.16	−.06														
Independent																			
5. Avoiding personnel shortages	9.44	2.82	−.28**	.02	.15	.15													
6. Human resource planning link with strategy	8.71	2.81	−.04	.06	−.10	−.01	.47**												
7. Applicant quality	8.93	2.93	.11	−.13	.02	.33**	.02	.09											
8. Affirmative action	3.83	1.52	−.01	.13	−.05	.15	.02	.06	.35**										
9. Regular age distribution	3.22	1.45	−.06	.35*	−.52**	.11	.15	.12	.43**	.43**									
10. Development and career planning	6.85	2.41	.01	−.02	−.05	.30**	.17	.06	.52**	.48**	.58**								
11. Financial performance	−0.06	0.38	.09	.32	.07	−.09	.05	−.09	−.20	.03	−.08	−.06							
12. Cost considerations	5.91	1.28	−.11	.02	−.03	−.46**	−.15	−.18	−.32**	−.19	−.15	−.13	.07						
13. Risk aversion	10.33	2.16	.01	−.01	.26	−.27*	−.21	−.16	−.41**	−.22*	−.52**	−.45**	.21	.41**					
14. Inaccurate human resource forecasting	10.31	2.43	.04	−.31*	.34*	−.14	−.02	−.07	−.36**	−.36**	−.54**	−.35**	.11	.27**	.47**				
15. Company employment	17,781	26,432	−.07	−.10	−.11	.11	.15	.16	.06	.18	.14	.21*	.05	−.12	−.13	−.04			
16. Manufacturing industry	0.52	0.50	.03	.16	−.14	−.01	.03	.06	−.12	−.20	−.08	−.01	−.16	.05	.10	−.02	−.07		
17. Retail trade industry	0.10	0.29	−.07	−.19	−.16	.34**	−.11	−.09	.01	.06	−.02	.11	.14	−.07	−.21*	−.01	.31**	−.34**	
18. Product demand during downturns	3.16	1.40	−.08	.14	.12	.22*	.08	.07	.09	.22*	−.00	.05	.02	−.34**	−.22*	−.18	.07	−.04	.07

[a] N's for correlations range from 82 to 105, except for financial performance, which range from 33 to 72, and employment of managers-officials and professionals, which range from 33 to 45.

[b] Value is .002.

* $p < .05$; ** $p < .01$

TABLE 2
Results of Regression Analysis for Percentage Change in Total Employment[a]

Variables	Model 1	Model 2	Model 3
Avoiding personnel shortages	−.09		
Human resource planning link with strategy	.00		
Applicant quality	−.05		
Affirmative action	.10		
Regular age distribution	.23		
Development and career planning	.16	.20†	
Financial performance	.44**	.42**	.45**
Cost considerations	−.34*		−.29*
Risk aversion	.01		
Inaccurate human resource forecasting	.29†		
Company employment	−.12		
Manufacturing industry	−.12		
Retail trade industry	−.10		
Product demand during downturns	−.28†		−.26*
R^2	.39	.22	.26
Adjusted R^2	.20	.19	.22
F	2.11*	8.11**	6.68**

[a] N = 62. Coefficients in column 3 produced by nested F-test model trimming procedures with .05 significance level criterion.
† $p < .10$
* $p < .05$
** $p < .01$

forecasting, more managers are hired countercyclically, a finding that provides some support for Hypothesis 10. Financial performance also has a marginally significant ($p < .10$), positive coefficient (column 2, Table 3). Applicant quality has an unexpected negative coefficient (column 2, Table 3), but it is only marginally significant ($p < .10$). Interestingly, the bivariate correlation between the employment variables for managers and professionals is negative ($r = -.41$, $p < .01$). Within companies, as the employment of managers increases, that of professionals decreases, and vice versa. Given the negative mean for the change in management employment, companies apparently hired professionals while the numbers of managers declined.

Percentage Change in Employment of Professionals

Columns 4, 5, and 6 of Table 3 present results for professionals. The models have substantially more explanatory power for professionals than for managers-officials, with adjusted R^2 values of .33 in the full model (column 4) and .38 and .33 in the more parsimonious models (columns 5 and 6). In all three models, the importance of human resource planning for avoiding per-

TABLE 3
Results of Regression Analysis for Group Percentage Changes in Employment[a]

	Managers-Officials			Professionals		
Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Avoiding personnel shortages	.05			.35*	.38**	.28*
Human resource planning link with strategy	.01			−.04		
Applicant quality	−.24	−.27†		.25		
Affirmative action	−.01			.24	.27†	
Regular age distribution	.55*	.49**	.36*	−.75**	−.70**	−.60**
Development and career planning	.09			.08		
Financial performance	.21	.24†		.03		
Cost considerations	−.06			.03		
Risk aversion	.45†			−.05		
Inaccurate human resource forecasting	−.25			.16		
Company employment	−.25			.03		
Manufacturing industry	.05			.02		
Retail trade industry	.00			−.30†		
Product demand during downturns	.28			.10		
R^2	.44	.28	.13	.55	.42	.37
Adjusted R^2	.17	.22	.11	.33	.38	.33
F	1.61	5.11**	6.33*	2.48*	9.69**	11.79**

[a] $N = 44$. Coefficients in columns 3 and 6 produced by nested F-test model trimming procedures with .05 significance level criterion.

† $p < .10$
* $p < .05$
** $p < .01$

sonnel shortages has significant positive coefficients ($p < .05$ and $p < .01$), as proposed in Hypothesis 1. Interestingly, the age distribution variable has negative signs in all three equations ($p < .01$), contrary to Hypothesis 5 and unlike the results for managers. The bivariate correlation between the two variables in Table 1 is also negative ($r = -.52$, $p < .01$). Companies with stronger concern over the maintenance of regular age distributions appear to hire fewer professionals countercyclically. The affirmative action variable has a positive sign, as predicted in Hypothesis 4; however, it is only marginally significant ($p < .10$).

Extent of Countercyclical Hiring

The dependent variable in Table 4 is the subjective measure of the extent of countercyclical hiring. The full model in column 1 and the stepwise model in column 2 explain a reasonable amount of variance, with adjusted R^2 values of .34 and .37. (The same results were obtained with stepwise and nested F-test trimming procedures.) As Hypothesis 1 predicts,

TABLE 4
Results of Regression Analysis for Extent of Countercyclical Hiring[a]

Variables	Model 1	Model 2
Avoiding personnel shortages	.25†	.23*
Human resource planning link with strategy	−.12	
Applicant quality	.16	
Affirmative action	−.10	
Regular age distribution	−.02	
Development and career planning	.31†	.28*
Financial performance	−.07	
Cost considerations	−.48**	−.47**
Risk aversion	.29*	.30*
Inaccurate human resource forecasting	.00	
Company employment	−.08	
Manufacturing industry	.18	
Retail trade industry	.34*	.22*
Product demand during downturns	−.05	
R^2	.49	.42
Adjusted R^2	.34	.37
F	3.27**	8.17**

[a] N = 62.
† $p < .10$
* $p < .05$
** $p < .01$

the importance of human resource planning for avoiding shortages of personnel has a positive coefficient in both models ($p < .10$ and $p < .05$). Results do not support Hypothesis 3, which predicts a positive coefficient for applicant quality, probably because of multicollinearity. As Hypothesis 6 predicts, development and career planning has a positive coefficient in both equations ($p < .10$ and $p < .05$). There is also further support for Hypothesis 8, as cost considerations are negatively related to countercyclical hiring ($p < .01$). Contrary to Hypothesis 9, risk aversion is positively related to countercyclical hiring in both models ($p < .05$). This relationship may be a result of multicollinearity since there is a significant, negative, bivariate correlation with countercyclical hiring ($r = -.27$, $p < .05$), as hypothesized, and several high correlations with other independent variables.

Summary of Results

Strong support was evident for Hypothesis 1, which predicts a positive sign for the importance of human resource planning for avoiding personnel shortages. The variable was significant for professionals and the subjective measure of the extent countercyclical hiring. In contrast, there was little support for Hypothesis 3, which predicts a positive sign for applicant quality, as significance was found only with the bivariate correlation with the subjective measure of countercyclical hiring. There was some support for Hypothesis 5, which predicts a positive sign for age distribution, as significant coefficients were found for managers' and officials' employment. In

contrast, there were significant, negative coefficients for professionals. There was also some support for Hypothesis 6, which predicts a positive sign for development and career planning. For this variable, we found marginal significance with the total employment measure and greater significance with the subjective measure. Some support emerged for Hypothesis 7, which predicts a positive sign for financial performance, as significant coefficients were found for the total and managers-officials employment measures. There was strong support for Hypothesis 8, which predicts a negative sign for cost, as significant coefficients were found for both total employment and extent of countercyclical hiring. Since the total employment measure encompasses more than the hiring of key managers and professionals, the importance of cost variables is unsurprising.

In contrast, results offered no support for Hypothesis 2, which predicts a positive sign for the strength of human resource planning's link with strategic planning. Further, there was little support for Hypothesis 4, which specifies a positive sign for affirmative action, as only marginal significance emerged for professionals. Additionally, the positive signs for risk aversion were opposite to the predictions of Hypothesis 9, but may be a result of multicollinearity. Finally, there was no support for Hypothesis 10, which specifies a negative sign for inaccurate human resource forecasting.

DISCUSSION

The results indicate that the models can explain a reasonable amount of variance in the measures of countercyclical hiring. Five variables were found to be significantly related with at least two measures of countercyclical hiring: planning to avoid personnel shortages, age distribution (both positive and negative relationships), development and career planning, financial performance, and cost. Companies emphasizing planning tend to be more likely to hire countercyclically. Such planning efforts are likely to assume greater importance in the 1990s, given the predicted escalation in demand for some key technical specialties, such as engineering (Silvestri & Lukasiewicz, 1988). Given the labor shortages that are expected to result from the demographics of the 1990s, planning failures will be more serious than they were formerly (Greller & Nee, 1990). Companies hiring countercyclically in order to avoid labor shortages should be well positioned as these labor shortages develop.

Maintenance of a regular age distribution also appears to be an important incentive for hiring managers, whether replacements or nonreplacements, and retaining managers during downturns. Companies may have learned that curtailing hiring during downturns can leave critical gaps in managerial age distributions. Further, the thinning of the middle-management ranks during the 1980s may have sensitized companies to age distributions.

An unexpected finding was that companies more concerned about

maintaining a regular age distribution were less likely to hire professionals during downturns and were probably more likely to reduce than increase their numbers. Whether reductions in numbers of professionals involve younger or older workers is unknown, as such reductions could result from inverse seniority-based layoffs, voluntary early retirements, or reductions in all areas of the age distribution. These results are in contrast to those for managers. Company sensitivity to the age distribution of professionals may be related to the frequency of obsolescence in engineering and other technical professions. Although obsolescence is sometimes a problem in management, it is usually more serious and prevalent in the technical professions (Kaufman, 1974). Also, the typically higher salaries of professionals make them targets for layoffs during downturns (Hoffman, 1976; Raelin, 1987). Turnover could also contribute to the explanation of these differing results if companies hire replacements for managers but not for professionals. Regardless of the cause of reduction, to the extent that companies thin their ranks of capable, highly paid professionals, their distinctive organizational competencies will be diminished and they will be slower to respond after upturns. Cost reduction strategies involving the voluntary early retirement of professionals may backfire because of the costs associated with the loss of experience, even in the short run.

Development and career planning was also related to countercyclical hiring. Developmental activities are probably a major assignment for employees hired countercyclically. Such assignments may be particularly relevant for inexperienced employees, such as new college graduates hired during downturns. As expected, financial performance was strongly related to percentage changes in total employment and marginally related to the employment of managers. Companies having strong financial performance conduct more extensive hiring during downturns than do weaker performers. This pattern seems reasonable, as companies performing well should be able to trade immediate costs for future contributions to productivity and profitability.

In contrast to these positive relationships, the cost of the strategy limits the extent of its practice because there are important cost-benefit trade-offs. The negative relationship between cost and countercyclical hiring appears to be a logical complement of its positive relationship with financial performance. Surprisingly, we found little or no support for the hypotheses involving human resource planning's link with strategic planning, affirmative action, risk aversion, and inaccurate human resource forecasting.

Limitations of the Study

Although we employed four measures to tap different dimensions of countercyclical hiring, all had weaknesses. Percentage change in total employment, for which data were readily available, is a "noisy" measure of countercyclical hiring since it reflects more than the hiring of key manage-

rial and professional employees.[21] Percentage changes in the employment of managers-officials and professionals are more precise measures, but because of difficulties in obtaining these data, there were relatively few observations. The subjective measure of countercyclical hiring overcomes some limitations because it deals only with hiring. Nonetheless, this variable shares the weaknesses common to all self-report measures, such as tapping higher-order cognitive processes (Podsakoff & Organ, 1986). Another limitation is that it was necessary to use retrospective data for some of the variables. Further, the convergent validities for cost considerations and regular age distribution were lower than desired. Finally, the regression analyses were sensitive to the effects of small sample size and multicollinearity. However, bivariate correlations provided support for most of the significant regression results.

CONCLUSIONS AND SUGGESTIONS FOR FUTURE RESEARCH

Taken as a whole, many of the relationships appear to describe the practices of profitable companies that have a strategic view of human resource management. Such relationships are consistent with those found in Cook and Ferris's (1986) study of strategic human resource management in declining industries. They found that companies performing well planned for future environmental fluctuations and had integrated strategic views of human resource activities. These findings are also consistent with the emphasis on human resource planning and systems of complementary human resource policies that have enabled some companies to avoid both shortages of personnel and layoffs (Greenhalgh et al., 1986). These strategically oriented programs are also more likely to have the credibility needed to convince decision makers of the feasibility of countercyclical hiring.

In addition to the hypothesized relationships, the relationships among the dependent variables deserve comment. The negative correlation between the percentage change in employment of managers and professionals and the low, negative correlations between these variables and the subjective measure of countercyclical hiring may indicate that some companies hire key employees while reducing the number of other employees. Countercyclical hiring could be a component in utility-based strategies of substituting high-quality, key employees for lower-quality or low-skill employees, such as seen in the example of Hublein, Inc. (Henn, 1985). Such relationships lead us to speculate as to whether declining companies hire a few key employees, while conducting layoffs, in turnaround efforts designed to ensure future survival. Obviously, such practices would generate strong feelings of inequity, and the potential for long-term ill will is great. Nonetheless, there have been recent precedents for the successful implementation of strategies that

[21] For the 62 observations on which data were complete on all independent variables and the subjective measure of countercyclical hiring, the correlation between that measure and percentage change in total employment was .07.

challenge traditional concepts of equity. Examples include the introduction of two-tiered wage structures and the permanent replacement of economic strikers. Under current conditions of intensely competitive global markets, low company loyalty to host countries, low organizational loyalty to employees (and vice versa), and diminished union power, such actions may be more likely than they were formerly.

In summary, the present analysis has identified characteristics of companies that are related to the practice of countercyclical hiring. Companies that hire more extensively than others during downturns appear to justify the costs of the strategy by the value they place on human resource benefits. Such companies tend to plan for their human resource needs, monitor the age distributions of their work forces, and focus on employee development; also, they probably have integrated, strategic views of human resource management activities. They may also tend to be more profitable than competitors, which probably enables them to trade current costs for uncertain future benefits. We hope these findings will enhance understanding of the relationships of the components of complex human resource systems that have enabled some companies to conduct limited hiring during downturns.

Suggestions for Future Research

At present, there is a paucity of empirical work in the general area of strategy adjustments during the business cycle (Mascarenhas & Aaker, 1989) and a specific void on employment strategies during the cycle. Aside from investigations of hiring and work force stability, studies of the merits of different work force reduction strategies are also needed (Greenhalgh et al., 1988). Another question for researchers concerns which approaches to human resources will become dominant. While strategies such as countercyclical hiring and no-layoff policies can be rational when viewed from an investment perspective, the emergence of "unbundled" companies, or those that divest traditional functions, may produce a far less developmental and investment-oriented view of human resources. There are formidable obstacles to the conduct of such studies, but they do not diminish the importance of studying these strategy adjustments.

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Charles R. Greer is a professor of management at Texas Christian University. He received his Ph.D. degree in business from the University of Kansas. His current research interests include human resource strategy and planning.

Timothy C. Ireland received his Ph.D. degree in economics from Oklahoma State University. He is a professor of management science in the College of Business Administration at Oklahoma State University. His research interests include econometric modeling and time series methods of forecasting.

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PERFORMANCE EFFECTS OF THREE FOCI IN SERVICE FIRMS

PRAVEEN R. NAYYAR
New York University

Service businesses are often urged to focus because otherwise they will falter. In effect, the "focus or falter" argument suggests that focus by service firms is likely to result in superior performance. Service firms might focus on serving selected customer segments, capitalizing on distinctive internal capabilities, and serving particular geographic regions. Each focus offers certain potential benefits. This study collected data from the chief executives of 198 service firms to develop systematic evidence on the performance effects of these three foci. We found that a focus on selected customer segments was associated with higher performance, but a focus on either internal capabilities or geographic regions was associated with lower performance.

Recently, Davidow and Uttal (1989) extolled the advantages of a focus on customer segments, or homogeneous sets of customers, by service firms. They suggested that focus promotes good customer service by allowing firms to meet customer needs closely. Focus also leads to a better match of supply with demand because it helps businesses to forecast demand accurately, to alter demand, and to expand the role of customers in producing service. In addition, Davidow and Uttal suggested that a lack of focus makes providing good service impossible. Hence, they concluded that a service business without a focus will falter.

This call for focus in service businesses is not new. A decade ago, Carman and Langeard urged service firms not to "serve the needs of too many sociodemographic segments" (1980: 7). Normann also noted the dangers of offering multiple services, writing that "it is difficult to mix service management systems, which represent delicate formulas for poised success, without destroying something valuable in the process. . . . Even mixing images can lead to great confusion" (1984: 98). Heskett (1986) urged service businesses to focus on distinctive internal capabilities, customer segments, or geographic regions because doing so would lead to certain competitive advantages. In effect, "focus or falter" suggests that focus by service firms is

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likely to result in superior performance. This argument does not suggest that a service firm should not offer multiple services but that if it does, it should maintain its focus.

The focus or falter argument about distinctive internal capabilities is similar to the relatedness hypothesis that researchers on diversification have offered. Proponents of the relatedness hypothesis have argued that exploiting relationships among businesses is likely to result in superior performance (see Ramanujam and Varadarajan [1989] for an extensive review of the diversification literature). This hypothesis has been subjected to many empirical tests, but the performance effects of the different ways in which businesses might be related in diversified firms have not been examined. However, several empirical studies of goods-producing diversified firms have found performance variations within the category of related-diversified firms (Barton, 1988; Bettis & Mahajan, 1985; Biggadike, 1976; Dubofsky & Varadarajan, 1987; Kitching, 1967; Lubatkin & Rogers, 1989; Nathanson & Cassano, 1982). In his seminal 1974 work, Rumelt recognized the need to examine such within-category differences:

> Before the work of classifying the firms was begun, it seemed useful to sub-divide the Related Business category into three subclasses. These subclasses would serve to differentiate among those firms that had diversified by relying chiefly on (1) relationships among markets served and distribution systems; (2) relationships based on similar production technologies; or (3) the exploitation of science-based research. It was found, however, that while individual moves to diversify were easily placed in one of these subclasses, few firms had used one type of relationship with enough consistency to warrant its use as characterizing the firm's strategic posture as a whole. Consequently, the attempt was abandoned (1974: 17).

The focus or falter argument with respect to customer segments and geographic regions applies to individual service businesses. Recently, some researchers have suggested that the notion of focus on customer segments may also be useful when a firm offers multiple services; these arguments are discussed later in this article.

Although it would be interesting to examine the performance effects of different foci adopted by goods-producing firms, I studied service firms because the extant literature on service businesses offers mainly normative guidance on the foci they should adopt when devising growth strategies (Carman & Langeard, 1980; Heskett, 1986; Nayyar, 1990; Normann, 1984). There is no systematic evidence on the performance effects of different foci adopted by service firms.

One reason for this apparent lack of research on foci in service firms might be that services are either similar to goods or can be treated as such because consumers buy benefits, not goods and services (Brown & Fern, 1981; Enis & Roering, 1981; Levitt, 1972). Therefore, the vast body of research on goods-producing firms has been seen as applying to service firms

as well. Several recent studies have suggested, however, that services are different from goods (Heskett, 1986; Lovelock, 1981; Mills & Moberg, 1982; Murray & Schlacter, 1990; Normann, 1984; Thomas, 1978). These differences stem from variations in buyer behavior in relation to goods and services and the substantively different characteristics of goods and services. Variations in buyers' behavior include risk perception differences that arise from the intangibility of services and the general difficulty in evaluating the quality of services (Murray & Schlacter, 1990).

The intangibility of services, firm inability to inventory services, and buyer difficulty in determining service quality are some of the frequently mentioned characteristics of services not shared by goods (Heskett, 1986; Lovelock, 1981; Mills, 1986; Normann, 1984; Sasser, Olsen, & Wyckoff, 1978; Shostack, 1977; Thomas, 1978). One consequence of these service characteristics is that they result in information asymmetries between buyers and sellers (Darby & Karni, 1973; Mills, 1986; Nelson, 1970, 1974; Zeithaml, 1981). In a previous work (Nayyar, 1990), I suggested that such information asymmetries could be a source of competitive advantage for diversified service firms. Since buyers find it difficult to evaluate services, they favor their current service providers when searching for suppliers of other services. Therefore, service firms can gain an advantage if they serve multiple needs of their existing clients. I noted that this benefit to diversified service firms does not arise from the economies of scope that are a cause for the existence of multiproduct firms (Panzar & Willig, 1981; Rumelt, 1982; Teece, 1980).

This study of service firms examined the performance effects of three foci—customer segments, distinctive internal capabilities, and geographic regions. I tested the focus or falter argument using data on the degree of focus in 198 large U.S. service firms.

BENEFITS OF FOCUS

Focus on Customer Segments

Essentially, a focus on customer segments encourages service businesses to segment the general market carefully and tailor their services to meet the needs of selected customer segments. Segmentation allows research into the needs of each set of customers. Firms can then serve homogeneous sets of customers well by designing different core services for each set. Such a focus results in superior performance for a service firm because it facilitates identification of the elements of service operations that are of strategic importance and concentration of the firm's efforts, investments, and controls (Davidow & Uttal, 1989; Heskett, 1986). In addition to the competitive advantages to be gained from closely meeting the needs of customers, a focused service strategy yields benefits from streamlining operations, resulting in improved productivity and service quality (Heskett, 1986). A focus on customer segments also prevents employee confusion that may arise from con-

flicts among the behaviors required to satisfy customers with differing needs (Normann, 1984). Clarity in the behaviors required from service employees promotes good service, resulting in satisfied customers, who explicitly or implicitly give positive feedback to service providers. This feedback lowers employee turnover and raises employee morale (Schneider & Bowen, 1985).

In addition, buyer-seller information asymmetries benefit service firms that serve multiple needs of their customers (Nayyar, 1990). Buyers make purchase decisions on the basis of the price and quality of the various alternatives that they are considering. The quality of a service is, however, difficult to evaluate because of its intangibility and the simultaneity with which it is produced and consumed (Holmstrom, 1985; Mills, 1986). This difficulty complicates the choice decision for potential buyers. Hence, buyers seek information that will allow them to make better choices (Stigler, 1961). Generally, the sellers of services have more information than buyers do about the true quality of their services. This information asymmetry leads to "moral hazard," or an incentive to exert less than complete effort in delivering a service, for sellers; for buyers, the asymmetry leads to "adverse selection," or an increased likelihood of picking a poor-quality supplier of a service (Holmstrom, 1985; Mills, 1986).

Potential buyers of services have an incentive to solve such problems. They might do so by favoring current service providers with whom they are satisfied when evaluating alternate providers of other services they need. Therefore, service providers who have made a favorable impression on existing buyers find it easier to influence them—as opposed to entirely new buyers—to try new goods or services. From the perspective of potential buyers, reputation reduces some adverse consequences of information asymmetries in buyer-seller relationships. Service firms can exploit buyers' incentives to solve selection problems by meeting multiple needs of existing satisfied customers because doing so yields a competitive advantage (Nayyar, 1990).

Service firms can benefit from information asymmetries in many situations. For example, public accounting firms often provide management consulting services to buyers of their auditing services. Buyers readily transfer their impressions of the service quality that their accounting firm delivers to its consulting services since the quality of such services is difficult to evaluate ex ante. Specific examples of service firms that benefit from a focus on customer segments are American Express, which provides financial services to buyers of its travel-related services, and Sears, Roebuck and Company, which provides financial services to its retail clients. Davidow and Uttal (1989), Heskett (1986), and Normann (1984) gave several other examples of service firms that appear to benefit from a focus on customer segments while meeting their customers' needs for multiple services. Hence,

> *Hypothesis 1: The relationship between a focus on customer segments and performance in service firms will be positive.*

Focus on Internal Capabilities

A focus on internal capabilities implies that firms produce and deliver products (goods and services) that share some unique factor of production, whether a management or distribution system, a product or process technology, or plant and equipment (Heskett, 1986). Sharing factors of production, or "leveraging" internal capabilities, across several products might result in economies of scope that arise when the joint cost of producing two or more outputs is less than the sum of the costs of producing each output by itself (Rumelt, 1982; Teece, 1980). If the shared factor exhibits economies of scale, if there are no further opportunities for its use in one product, and if transaction costs prevent an efficient market in the shared factor, economies of scope provide a motive for firms to produce multiple outputs because they reduce joint costs of production (Teece, 1980). Shared factors can include not only a firm's physical resources but also its distinctive, or core, competence (Hitt & Ireland, 1985; Prahalad & Hamel, 1990; Selznick, 1957).

Like goods-producing firms, service firms may share a variety of internal capabilities among businesses. For example, firms that are primarily in the hotel business may apply their expertise in efficiently meeting the boarding and lodging needs of travelers to providing similar services to patients in hospitals and nursing homes. ARA Services, a large, diversified U.S. firm, maintains municipal vehicles using its vast automobile-fleet maintenance facilities, and Delta Airlines services the aircraft of other airlines using its maintenance facilities at many airports. Thus,

> *Hypothesis 2: The relationship between a focus on internal capabilities and performance in service firms will be positive.*

Focus on Geographic Regions

Analyses of the potential benefits of geographic focus can be conducted within a country or worldwide. Within-country analyses address local, regional, and national issues. In contrast, worldwide analyses address international, world-regional, and global issues. At both levels of analysis, however, the potential benefits of geographic focus arise from understanding, responding to, and taking advantage of varying environmental conditions across geographic areas (Ghoshal, 1987; Kim, Hwang, & Burgers, 1989). These variations include differences in political, cultural, demographic, economic, and regulatory conditions. Porter (1986) suggested, however, that differences in these conditions are simply a matter of degree, so that a framework for analyzing global strategies can be readily applied to the determination of strategy within large countries consisting of several regions or cities. Hence, businesses need to determine geographic regions in such a way that differences among them are salient.

The geographic focus argument suggests that exclusive attention to conditions within particular geographic regions results in benefits for service

firms owing to the intensity with which the firms can provide service to their customers (Heskett, 1986). Operating within a limited geographic region allows a firm to remain close to its customers and intensively meet their needs and to respond quickly and effectively to changes in customer needs. A high market share in a limited geographic region might also permit a service firm to maintain a higher level of service than a firm with smaller market shares in many different geographic regions. This density effect might also permit a service firm to maintain a network of sites at which it can provide service to its customers. Firms facing smaller customer densities would be at a cost disadvantage if they attempted to duplicate the network of the market share leader in a given market region (Heskett, 1986).

Carman and Langeard (1980) alerted service firms to the dangers of expanding into out-of-country markets, noting that service firms face substantially more risk than goods-producing firms from such growth. Those authors reasoned that such differences in risk arise because service firms cannot simply enter foreign markets by first exporting to and then investing in them. Instead, service firms must at the onset invest in the foreign markets to serve customers face to face. Therefore, service firms face greater difficulties than goods-producing firms in learning about foreign markets, avoiding mistakes, demonstrating the value of the services they offer, controlling quality, obtaining the necessary human resources, and dealing with host governments. Although not suggesting that service firms avoid expansion into foreign markets altogether, Carman and Langeard urged "that it be approached with considerable caution, evaluation and flexibility" (1980: 21). Providing some empirical support for this view, Channon (1978) reported a decline in return on capital with increasing levels of overseas activity for a sample of British service firms.

In contrast, however, in a study comparing riskiness, Shaked (1986) found that the mean probability of insolvency for domestic firms was significantly higher than that for multinational firms. He also found that the average systematic risk of the latter was significantly lower than that of the former. These findings suggest that firms are not likely to face more risk by expansion into foreign markets than they face by staying in their home-country markets only.

International participation also may result in benefits for a firm. Research on international market diversification has found a positive relationship between the intensity of international market operations and profitability (Leftwich, 1974; Severn & Laurence, 1974; Rugman, 1979; Wolf, 1977). To the extent that economic activities in different regions of the world are less than perfectly correlated, participation in multiple geographic regions should lower the risk of performance variations (Buhner, 1987; Caves, 1982; Miller & Pras, 1980).

A broad scope of operations also increases costs. Institutional and cultural factors erect formidable barriers (Kogut, 1985). Geographically diverse operations may prevent a firm from tailoring its activities to serve a particular geographic area better than focused competitors meeting the needs of

limited areas (Porter, 1985). The growing similarity of countries in available infrastructures, distribution channels, and consumer preferences, and the integrating role of information technologies and ease of travel may reduce some of these costs.

These conflicting arguments on the costs and benefits of a focus on geographic regions do not suggest any clear hypothesis. Therefore, I simply attempted to obtain an empirical answer to the following research question: What is the performance effect of a focus on geographic regions by service firms?

METHODS

Sample

The sample was drawn from the Service 500 list compiled by Fortune (*Fortune*, 1987) and the service firms in *The Corporate 1,000* published by the Monitor Publishing Company (1987). Firms in these classifications obtain more than 50 percent of their revenues from businesses in service industries. I excluded utilities, government and noncommercial educational, scientific, and research organizations, and firms receiving more than 10 percent of their revenues from nonservice businesses. Constraints on access, time, and funding limited the number of firms I could contact. Therefore, I selected a random sample of 400 service firms. These firms were in a wide variety of service industries; their activities spanned the full range of Standard Industrial Classification (SIC) codes assigned to nonmanufacturing industries, excluding utilities and government and noncommercial educational, scientific, and research organizations. The sample firms ranged in size from \$250 million to over \$15 billion in annual revenues in 1987, with an average of \$2.1 billion. The sample therefore comprised large U.S. service firms.

A pretested, self-administered, structured questionnaire was sent to the chief executive officers (CEOs) of the sample firms in late 1988. After follow-up efforts, I received 285 responses, representing a response rate of over 71 percent. Of the responders, 57 declined to participate, mostly because of concern over data confidentiality, although the cover letter accompanying the questionnaire contained assurances that only aggregate data would be reported. The large number of declines was not unexpected because I requested confidential information on corporate and business strategy. I discarded 30 questionnaires either because data were missing and could not be obtained even after follow-up efforts or because a responding CEO had been with a firm for less than two years. I used the latter criterion to ensure that the CEOs were sufficiently well informed about their firms' strategies. These procedures resulted in 198 usable responses, representing an effective response rate of 49.5 percent. Table 1 lists the primary industries in which the sample firms participated.

Table 2 gives results of tests of nonresponse bias. These tests did not reveal any differences between responders and nonresponders in terms of

TABLE 1
Primary Industries of Sample Firms

Industries	Number of Firms
Air transport	11
Amusement and recreation services	9
Banks	15
Business services	7
Communication	7
Consulting services	7
Eating places	18
Financial services	9
Health services	17
Hotels	19
Insurance	11
Personal services	8
Real estate	7
Repair and maintenance services	3
Retailers	18
Transport (except air) and transportation services	15
Wholesalers	17
Total	198

assets, revenues, net income, return on equity, market-to-book value of equity, and Jensen's alpha, a stock-market measure of firm performance that accounts for industry participation and risk.

Data Collection

On the premise that the pursuit of focus exploits a service firm's distinctive competence (Selznick, 1957; Snow & Hrebiniak, 1980), I collected data on the degree of focus in service firms using CEOs as key informants (Siedler, 1974). It may be argued that a researcher should use multiple respondents from each firm rather than a single informant to test the reliability of reported data. The use of multiple respondents, however, is more appropriate for recording perceptual data, such as data on organizational culture

TABLE 2
Results of Tests of Nonresponse Bias

	Responders		Nonresponders		
Characteristics	Means	s.d.	Means	s.d.	t
Assets in billions of dollars	7.930	25.740	6.940	16.340	0.458
Revenues in billions of dollars	2.100	7.620	2.310	8.440	−0.261
Net income in millions of dollars	148.610	366.330	121.750	295.060	0.807
Return on equity	13.280%	147.860%	12.790%	154.970%	0.032
Market-to-book value of equity	1.273	0.899	1.177	0.843	1.101
Jensen's alpha	−0.019	0.021	−0.018	0.024	0.444

or the dimensions of informal organizational structures (Campbell, 1955; Siedler, 1974). In contrast, I required relatively objective data to assess realized, not perceived, focus. The use of a key informant was therefore appropriate. One issue that needed to be addressed was the choice of an appropriate key informant. Focus is a fundamental strategic choice for firms, and since it is highly likely that CEOs will be adequately informed of their firms' focus strategies, they were therefore the most appropriate informants for such data. The use of CEOs as informants in this study is also consistent with the practices of previous researchers who have examined organizational strategies (Shortell & Zajac, 1990; Snow & Hrebiniak, 1980; Zajac & Shortell, 1989).

A pilot test of the questionnaire in ten large, diversified U.S. service firms, which were subsequently excluded from the study, was also conducted. During this pilot test, I studied each firm closely and observed the process the CEOs adopted as they collected the information needed to complete the questionnaire. These observations indicated that CEOs interpreted the questions and the instructions as intended and usually collected data to complete the questionnaire.

CEOs were asked to consult, if necessary, with appropriate persons in their firms when collecting data to complete the questionnaire. Follow-up contacts, letters that accompanied returned questionnaires, and comments on questionnaires indicated that the CEOs often consulted members of their staffs and other highly placed, potentially well-informed members of their top management teams before completing the questionnaires. Several CEOs and other senior executives from the responding firms also discussed the issues connected with this research with me after responding to the questionnaire. These actions heightened my confidence in the reliability and validity of the data provided by the firms and the belief that the CEOs had at least approved the contents of the returned questionnaires.

Measures of Degree of Focus

Jacquemin and Berry (1979) defined an entropy measure of diversification; similarly, I used entropy as a measure of dispersion of firm revenues among customer segments, sets of service businesses with no shared resources, and geographic regions. Appendix A defines these entropy measures. High values on the measures indicate low degrees of focus.

The questionnaire was designed to ascertain the division of each firm's total revenues among its top ten businesses, distributed across different customer segments and geographic regions, and also to obtain data on the presence of resources shared among different businesses. The CEOs were requested to fill in three data matrices, shown in Figures 1 and 2.

Focus on customer segments. To fill in the first matrix, the CEOs answered five questions. First, I requested a list of a firm's ten "most significant businesses (in terms of revenues)." I asked for information on ten businesses since that is the maximum number that firms are required to report in their 10K filings. It is also the maximum number of segments on which data are

available for each firm in the COMPUSTAT business segment data base. Hence, these two sources of secondary data served to check the data reported on the questionnaires. I obtained over 90 percent correspondence between the primary and secondary data with respect to the numbers and sizes of the businesses of each firm. Discrepancies were resolved in consultation with the CEOs of the concerned firms.

Second, each CEO listed the top ten customer segments that the firm served. Third, each CEO entered the proportion of total firm revenues obtained from each of the firm's businesses (last column, Figure 1). These proportions summed to 100 percent for all sample firms, indicating that collecting data on at most ten businesses was adequate.

Fourth, the proportion of total firm revenues obtained from each customer segment was entered (last row, Figure 1). Fifth, for each business the CEO entered the proportion of total business revenues obtained from each customer segment it served in the appropriate boxes of the matrix.

From these data, I computed a measure of the degree of focus on customer segments in two steps. First, I calculated the entropy due to multiple customer segments served by each business of the firm. Second, I computed a weighted average degree of focus for each firm using the revenue shares of the businesses in the total revenues of the firm as weights (Appendix A).

Focus on internal capabilities. The second matrix had two parts. First, I requested a list of each firm's top ten businesses, as in the first matrix. Second, each CEO identified significant resources shared among businesses: "For each pair of businesses, i.e., each box of the matrix, please list any *significant shared resources* between those businesses." The questionnaire described significant resources as strengths or assets: "physical plant or

FIGURE 1
Matrix Used to Collect Data on Degree of Focus on Customer Segments

	Customer Segments				
Businesses of the firm	1	2	. . .	10	Proportion of total firm revenues from business
1					
2					
. . .					
10					
Proportion of total firm revenues from customer segment					

FIGURE 2
Matrix Used to Collect Data on Degree of Focus on Internal Capabilities

Businesses of the firm	2	3	...	10
1				
2				
...				
9				
10				

equipment," personnel's "specialized knowledge or skills," or "special routines or repertoires." Shared resources across any two businesses indicated the presence of a focus on an internal capability. Since I requested identification of significant resources, I assumed that such resources reflected the distinctive competences of the firms and, as such, were the ones most likely to meet the requirements for providing benefits from economies of scope to firms that used them in multiple businesses. Hence, shared resources across businesses were a surrogate for a focus on internal capabilities.

From these data, I identified sets of businesses that shared resources. An entropy measure of focus on internal capabilities was computed from the revenue share of these sets of businesses in total firm revenues (Appendix A). This measure is exactly equivalent to the measure of unrelated diversification used in some studies (Jacquemin & Berry, 1979; Palepu, 1985) except that those studies defined relatedness more broadly to include relationships owing to similarities in products, markets, and technologies.

Focus on geographic regions. Assuming that differences among regions of the world were likely to be more salient than differences within the United States with respect to the ability of service firms to ascertain and respond to customer needs, I chose to assess the degree of focus on geographic regions defined globally. Drawing on the global diversification literature, with a view toward minimizing data collection complexity, I listed nine geographic regions on the questionnaire: North America (the United States and Canada); South America; the Union of Soviet Socialist Republics and Eastern Europe; Western Europe; the Pacific Rim; China; other Asian countries; Africa; and Australia and New Zealand (Kim et al., 1989) Admittedly, these classifications involve some degree of subjectivity, but they do capture between-market heterogeneity. The format of the third matrix was identical to that of the first, except that geographic regions replaced customer segments. From these data, an entropy measure of degree of focus on geographic regions was computed exactly as was the measure for degree of focus on customer segments (Appendix A).

Construct validity of focus measures. Construct validity includes theoretical and observational meaningfulness, internal consistency of operational definitions, and convergent, discriminant, and nomological validity (Bagozzi, 1980). To determine the construct validity of the three measures of degree of focus, I selected a random subsample of 33 firms that permitted me to collect data firsthand from internal firm documents and from interviews with both corporate and business-level executives. The documents examined contained sales and other data for each business of the firm distributed across different customer segments and geographic regions. Interviews with corporate and business-level executives were conducted to ascertain the presence of any resources shared among businesses. Following Gupta and Govindarajan (1986), in these interviews I focused on the presence, extent, and importance of resource sharing between pairs of businesses, the amount of time personnel spent in interactions across businesses, and the relative influence that each business had on the plans and actions of the other businesses in a firm. On the average, interviews and data collection took five hours per firm.

The data collected firsthand from this subsample of firms were compared with the data their CEOs had provided earlier on the questionnaires. These comparisons yielded the following means of correlation coefficients for each firm across the two data sets: business sales, 0.97; customer segment sales, 0.89; and geographic region sales, 0.94, all significant at the .001 level. There was an average 85 percent agreement on resources shared between pairs of businesses of each firm. In addition to these comparisons of disaggregate data for each firm, I also computed the three measures of degree of focus for the subsample firms based on the firsthand data. The correlation coefficients for the three measures across the two data sets were: degree of focus on customer segments, 0.91; degree of focus on internal capabilities, 0.83; and degree of focus on geographic regions, 0.94, all significant at the .001 level. Thus, these data provided support for the construct validity of the focus measures used here.

Control Variables

Firm size was used as a control variable. Largeness offers the potential for economies of scale but can also lead to costs arising from managerial diseconomies. Further, Nathanson and Cassano (1982) found that the relationship of product and market diversity to the performance of the firms in their sample was different for small and large firms. To account for any such relationships, I used the natural logarithm of firm revenues as a measure of firm size.

Firm Performance

ROE adjusted for industry and systematic risk, industry-adjusted market-to-book value of equity, and Jensen's alpha were the performance measures. I adjusted performance measures where necessary to account for the

relationship between risk and return and for differences in firms' performance owing to their participation in different industries, each of which offers the potential for a different rate of return (Porter, 1980). Appendix B formally defines the performance measures used in this study.

Return on equity (ROE) was the accounting-based measure of firm performance used because return on investment and return on assets present difficulties where investment and asset levels are almost nonexistent, as they are, for example, in consulting, insurance, and banking (Channon, 1978). The need for common measures of performance for a cross-sectional sample dictated the choice of ROE. I used average ROE over the five years 1983–87 to reduce the chance that performance data from an unusually good or bad year might confound the analysis (Amit & Livnat, 1989; Dubofsky & Varadarajan, 1987).

The ratio of the market value of equity to its book value (Amit & Livnat, 1988; Varaiya, Kerin, & Weeks, 1987) is theoretically and empirically equivalent to Tobin's q (Varaiya et al., 1987). Tobin's q (Lindenberg & Ross, 1981) incorporates a systematic risk adjustment, imputes equilibrium returns, and mitigates distortions due to tax laws and accounting conventions (Wernerfelt & Montgomery, 1988).

The underlying performance of the industries in which a firm participates affects both these measures of firm performance, so I applied Rumelt's (1982) approach to controlling for performance differences across industries. He defined a profit premium as $P = ROC - R$, where ROC is a firm's return on capital and R is the expected weighted average return for the firm computed as the average return for firms in the industries in which it participates, weighted by the share of the firm's invested capital in each industry. This method adjusts the actual ROE of each firm by subtracting a weighted average of the industry average ROE for each industry in which the firm participates. Because there are difficulties in identifying assets associated with each industry in a diversified firm, and following previous usage (Montgomery, 1979; Rumelt, 1982), I used the percentage of total revenues in each industry as weights, although capital investment is the correct weight to use (Carter, 1977).

Risk is also an important consideration in the formulation of strategy (Andrews, 1980; Bettis, 1982). Since investors do not reward firms for reducing total risk, it is generally accepted that economic returns to firms are related to the systematic risk attached to them. Hence, to obtain an industry- and risk-adjusted performance measure for each firm, I divided both firm and industry five-year average ROE over the period 1983–87 by an accounting-based measure of systematic risk suggested by Hill and Stone (1980). This measure of systematic risk is defined as the ratio of the covariance of a firm's return on equity with the return on equity obtained on a broad market portfolio of stocks to the variance of the return on equity of the market portfolio. This measure is an accounting equivalent to the stock-market-based measure of systematic risk derived from the capital asset pricing

model.[1] Next, following previous usage (Rumelt, 1982), I computed a risk-adjusted, weighted average industry ROE using a firm's 1987 proportion of revenues from its activities in each industry. Finally, I subtracted this computed value from the risk-adjusted firm ROE. The market-to-book value of equity was similarly adjusted for industry participation differences. As noted earlier, this measure needs no risk adjustment.

Stock-market-based measures of firm performance do not suffer from the measurement problems caused by multiindustry participation. Such measures also reflect risk-adjusted performance (Jensen, 1969). I used Jensen's alpha, a measure of operating performance based on the market model, obtained as the estimate of the intercept in a regression of firm returns on market returns, both computed in excess of the risk-free rate (Jensen, 1969). Jensen's alpha compares the performance of a firm (or a managed portfolio of stocks) to that of firms in an unmanaged portfolio with similar market risk. This use of Jensen's alpha is consistent with many recent studies of corporate diversification (Buhner, 1987; Dubofsky & Varadarajan, 1987; Galbraith, Samuelson, Stiles, & Merrill, 1986; Lubatkin & Rogers, 1989; Michel & Shaked, 1984).

Data on accounting performance were collected from the COMPUSTAT tapes. Data on stock market performance were obtained from tapes maintained by the Center for Research in Security Prices (CRSP) at the University of Chicago. Firm and industry financial performance data were collected for a period of 20 years (1968–87) for the computation of systematic risk based on ROE. Stationarity of the risk measures over such a long period was a concern, but no satisfactory approach to estimating risk measures after allowing for such instability is available (McDonald, 1985). I computed the average market-to-book value of equity during 1987 from data obtained from the COMPUSTAT tapes and computed Jensen's alpha using daily firm and stock-market returns obtained from the CRSP tapes for 1987 and the 12-month treasury bond rate for each month of 1987 to obtain the risk-free rate.

RESULTS

Table 3 presents sample means, standard deviations, and the full correlation matrix.

Regression analysis was used to test the two hypotheses and the research question. I computed separate equations for the three performance measures; Table 4 gives results. Since high values of the degree of focus variables indicate low focus, I expected the coefficients of the customer segments and internal capabilities variables to be negative. No predictions were made with respect to the sign of the coefficient of the geographic

[1] Ruefli (1990) cautioned against the use of the mean-variance approach to risk-return relationships, showing that it is inherently flawed. The accounting-based measure of systematic risk used in this study, however, is not based on a mean-variance approach. Further, unlike Ruefli's analysis, which addressed total risk only, this study used systematic risk.

TABLE 3
Means, Standard Deviations, and Correlations

Variables	Means	s.d.	1	2	3	4	5	6
1. Degree of focus: Customer segments	0.443	0.176						
2. Degree of focus: Internal capabilities	0.837	0.136	.20*					
3. Degree of focus: Geographic regions	1.468	0.577	−.10	.08				
4. Firm size	7.450	0.950	.18*	.17*	.21*			
5. Adjusted ROE	25.672	97.218	−.09	.34*	.25*	.14		
6. Adjusted market-to-book value of equity	1.113	0.754	−.36*	.35*	.32*	.10	.22*	
7. Jensen's alpha	−0.019	0.021	−.29*	.30*	.37*	.11	.19*	.30*

* $p < .01$

regions variable, although a negative coefficient would be consistent with the focus or falter argument.

As Hypothesis 1 predicts, the coefficient of focus on customer segments was significant and negative for all three performance measures. The coefficient of focus on internal capabilities, however, was significant and positive for all three performance measures, contrary to Hypothesis 2. The coefficient for focus on geographic regions was also significant and positive for all three performance measures, contrary to the focus or falter argument.

The coefficient for firm size was significant and positive when adjusted ROE was used but was insignificant and positive for the other two performance measures. This lack of a systematic relationship between firm size and firm performance across the three performance measures might have occurred because the second two measures are market-based and the first is accounting-based. The market-based measures may already include an ex ante adjustment for the effects of firm size that the accounting-based measure does not.

DISCUSSION AND CONCLUSIONS

The aim of this study was to examine the performance effects of three different foci for service firms. Service firms may focus on customer segments, internal capabilities, or geographic regions, or on any combination of those elements. Although several normative statements about the merits of focus for a service firm have been made (Carman & Langeard, 1980; Davidow & Uttal, 1989; Heskett, 1986; Normann, 1984), prior to this study there was no systematic evidence on the performance effects of the different foci that service firms might adopt. In brief, in this sample of service firms (1) a focus on few customer segments was associated with higher performance, (2) a focus on internal capabilities was associated with lower performance, and (3) a focus on few geographic regions was associated with lower performance.

TABLE 4
Estimates of Standardized Regression Coefficients

Independent Variables	Dependent Variables: Industry- and-Risk-Adjusted ROE *b*	Industry-Adjusted Market-to-Book Value of Equity *b*	Jensen's Alpha *b*
Degree of focus: Customer segments	−.155*	−.421*	−.336*
Degree of focus: Internal capabilities	.346*	.403*	.333*
Degree of focus: Geographic regions	.195*	.234*	.301*
Firm size	.074*	.057	.052
R^2	.193	.370	.315
F	11.575	28.370	22.189
p	0	0	0

* $p < .05$

First, the finding for customer segments is consistent with the view that service firms benefit from understanding and intensively serving the needs of one or a few customer segments (Carman & Langeard, 1980; Davidow & Uttal, 1989; Heskett, 1986; Nayyar, 1990; Normann, 1984). Although it may be tempting to try to sell a service to multiple customer segments, our results suggest that such an approach is likely to lead to inferior performance because a firm cannot meet the needs of any segment closely while trying to meet the diverse needs of many. Other, more focused, competitors can more closely serve the needs of their chosen customer segments and therefore experience superior performance. This finding does not imply, however, that service firms that focus on customer segments must not offer multiple services.

Second, the finding that a focus on internal capabilities is associated with lower performance is contrary to the hypothesis that service firms benefit from applying their internal capabilities across multiple services to obtain economies of scope (Heskett, 1986). In contrast, this finding suggests that firms that have attempted to benefit from economies of scope have been unable to capture those benefits. One reason may be that implementation difficulties arising from the need to share resources among different businesses raise coordination costs, so that the net effect of sharing is negative. Achieving the benefits of economies of scope requires establishing operating relationships among business units in diversified firms (Buono & Bowditch, 1989; Kanter, 1989; Porter, 1985; Ramanujam & Varadarajan, 1989; Reed & Luffman, 1986). Such relationships are problematic and costly (Carman & Langeard, 1980; Hoskisson & Hitt, 1988; Jones & Hill, 1988; Kanter, 1989; Porter, 1985). Reed and Luffman (1986) and Kanter (1989) suggested that

firms might forego potential benefits when they are likely to incur substantial costs in implementing such strategies. In this vein, it might be useful for firms to consider internal transaction costs explicitly in comparison to the costs of transactions in the market when determining the magnitude of likely benefits from economies of scope (Williamson, 1975; Williamson & Ouchi, 1981).

Diversified firms incur costs when they attempt to achieve potential benefits by integrating new businesses into their portfolios. They integrate by forging new organizational relationships, changing existing ones, and creating mechanisms to ensure cooperation among businesses (Ansoff, 1965; Biggadike, 1976; Buono & Bowditch, 1989; Chandler, 1962; Normann, 1984; Salter & Weinhold, 1979). Firms attempting to exploit information asymmetries or economies of scope may encounter several organizational barriers, or obstacles that get in the way of obtaining cooperation within organizations. These obstacles arise for several reasons: lack of sufficient communication about intentions to exploit relationships among businesses (Kanter, 1989); lack of a detailed action plan for implementing strategies (Kanter, 1989); perceived or real loss of independence and autonomy from sharing (Bastien, 1987; Buono & Bowditch, 1989; Gupta & Govindarajan, 1986; Mirvis, 1985; Napier, 1989; Porter, 1985); organizational learning difficulties (Ghoshal, 1987; Kazanjian & Drazin, 1987); difficulties in technology transfer (Adler, 1989; Gruber & Marquis, 1969; Tornatzky et al., 1983); and differences in accounting conventions (Dearden, 1978).

In sum, my finding is consistent with research suggesting that attaining the benefits of economies of scope is difficult. Although a focus on distinctive internal capabilities might be attractive because it appears to apply existing resources across multiple services, implementing this strategy seems to be difficult.

Third, my finding that a focus on geographic regions is associated with lower performance supports the view that participation in multiple geographic regions of the world that are sufficiently different that their economies are not perfectly correlated permits service firms to reduce the risks of participation in only one geographic region. It appears that the service firms studied overcame the risks and costs thought to be associated with an increase in geographic scope (Carman & Langeard, 1980). In addition, it appears that the benefits of a narrow geographic focus are either not as great as the benefits of a wide geographic focus or that appropriately tailoring services and their delivery systems to the requirements of each region can overcome disadvantages of a wide focus.

Many successful U.S. service firms have been unable, however, to duplicate their success abroad. For example, a recent *Wall Street Journal* article reported that Federal Express sustained a nine-month loss of $200 million from its overseas operations and that United Parcel Service has also experienced losses from its overseas operations (Pearl, 1991). The article suggested several reasons for these failures abroad. First, these companies attempted to enter markets dominated by strong competitors who have estab-

lished good reputations and relationships with their customers. Second, regulators overseas might not have been interested in helping foreign competitors. Third, worldwide internal policies designed to streamline service operations in the United States, such as "last pickup at 5 P.M.," were inconsistent with local needs in countries in which people worked as late as 8 P.M. Other recent *Wall Street Journal* articles have chronicled the woes that global expansion has caused for banks (Sesit, Forman, Roth, & Brauchli, 1991) and discussed the difficulties that Europe's insurers are facing as they try to enter foreign markets (Hagerty, 1991). These adverse results might be explained, however, as a temporary phenomenon that reflects the difficulties associated with entering foreign markets, such as high initial investments in learning about foreign practices and in building reputation and obtaining regulatory approvals (Carman & Langeard, 1980).

Fourth, since this study suggests that each focus in service firms affects performance differently, foci should be considered in studies of the performance of service firms. Their exclusion may cause included variables to acquire a misplaced significance. Also, the study of within-category performance differences among related-diversified firms might benefit from an analysis of the underlying foci those firms adopt.

Future research could extend or modify this study in several ways. One area that clearly needs a better theoretical basis and operational definition is the identification of geographic regions. The methods I used relied on previous definitions of unique geographic regions of the world. To the best of my knowledge, there has been no attempt to verify whether these regions are truly unique in important ways. Similarly, within-country differences and their impact on business practices and performance have seldom been examined. Political entities like states and counties and areas defined for statistical reasons are unlikely to reflect significant underlying differences that are important for business purposes. Yet both academic research and business practice use these boundaries.

Second, heterogeneity within the service sector could be examined. How do differences in the characteristics of services affect the benefits that firms might obtain from different foci? Is it more likely that certain types of services benefit from adopting a particular focus?

Third, future research could incorporate organizational variables that are relevant in implementing focus strategies. For example, effective resource sharing among businesses requires the use of administrative mechanisms that both maximize opportunities to share and provide incentives to do so. Further, such research could also examine whether differences in foci call for different implementation approaches.

Fourth, this study focused on service firms only. Many goods-producing firms, however, also offer services, either with their manufactured goods or independently. It would be interesting to extend the analysis of this study to such firms, given that there have been recent calls for a "customer service orientation" among manufacturing firms (Bowen, Siehl, & Schneider, 1989; Chase & Garvin, 1989; Quinn, Doorley, & Paquette, 1990). It is possible, for

example, that significant difficulties associated with sharing resources among different goods-producing businesses might impede providing good customer service. In contrast, differences across geographic regions may need to be considered when goods-producing firms that operate worldwide devise customer service strategies.

Finally, several methodological improvements to this study are possible and needed. More objective measurements of focus, especially of focus on internal capabilities, would be useful. A longitudinal analysis to discern lagged effects and, possibly, causality would also be useful. Finally, examining generic industry differences instead of controlling for them through adjusted performance measures would be useful.

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APPENDIX A
Definitions of Entropy Measures of Degree of Focus

(1) Degree of focus on customer segments was computed in two steps as follows:

Entropy owing to multiple customer segments served by each business (ECS_j) is given by

$$ECS_j = \sum_{i\epsilon j} P_{ji} \ln(1/P_{ji})$$

where P_{ji} is the revenue share of customer segment i served by business j in the total revenues of business j.

Degree of focus on customer segments is then

$$DFCS = \sum_{j=1}^{N} ECS_j \, P_j$$

where P_j is the share of the jth business in the total revenues of a firm and N is the total number of businesses in the firm.

(2) Degree of focus on geographic regions was similarly computed except that it was based on the distribution of business revenues among geographic regions.

(3) Degree of focus on internal capabilities was computed as

$$DFIC = \sum_{k=1}^{M} P_k \ln(1/P_k)$$

where P_k is the revenue share of the kth group of businesses that share resources in the total revenues of the firm and M is the total number of such groups of businesses in the firm.

APPENDIX B
Definitions of Performance Measures

(1) Industry- and risk-adjusted return on equity was computed as

B_f^{ROE} = ROE-based systematic risk for firm f, given by

$$\frac{\text{Covariance } (ROE_f, ROE_m)^{1968-87}}{\text{Variance } (ROE_m)^{1968-87}}$$

B_j^{ROE} = ROE-based systematic risk for industry j, given by

$$\frac{\text{Covariance } (ROE_j, ROE_m)^{1968-87}}{\text{Variance } (ROE_m)^{1968-87}}$$

and

$$ADJROE_f = \frac{ROE_f^{1983-87}}{B_f^{ROE}} - \Sigma P_j \times \frac{ROE_j^{1983-87}}{B_j^{ROE}}$$

where

ROE_f = average ROE for firm f over the period indicated,
ROE_j = average ROE for industry j over the period indicated, with an industry defined as including all firms in the COMPUSTAT data base with primary SIC codes in that industry,
ROE_m = return on equity for a market portfolio comprising all firms in the COMPUSTAT data base,

and

P_j = proportion of revenues from industry j in the total revenues of a firm.

(2) Industry-adjusted market-to-book value of equity was computed as

$$ADJMBVE_f = \frac{AMV_f^{1987}}{ABV_f^{1987}} - \Sigma\, P_j \times \frac{AMV_j^{1987}}{ABV_j^{1987}}$$

where

AMV_f^{1987} = Average market value of equity for firm f in 1987 computed as the mean of the opening and closing values for the year,

ABV_f^{1987} = average book value of equity for firm f in 1987 computed as the mean of the opening and closing values for the year,

AMV_j^{1987} = Average market value of equity for industry j in 1987 computed as the mean of the opening and closing values for all firms in industry j for the year,

and

ABV_j^{1987} = average book value of equity for industry j in 1987 computed as the mean of the opening and closing values for all firms in industry j for the year.

(3) Jensen's alpha was computed as the intercept term in the following regression equation estimated using daily stock returns for 1987:

$$(R_{ft} - R_{rt}) = L_f + B_f(R_{mt} - R_{rt})$$

where

R_{ft} = stock return on day t for firm f,

R_{mt} = stock return on day t for a market portfolio,

R_{rt} = risk-free rate of return computed as the daily return on a 12-month treasury bond for each month,

B_f = systematic risk for firm f,

and

L_f = Jensen's alpha for firm f.

Praveen Nayyar received his Ph.D. degree in business administration from the University of Michigan in 1988. He is an assistant professor of management in the Leonard N. Stern School of Business at New York University. His primary research interests center on corporate and business strategy in service businesses and technology strategy.

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EFFECTS OF BOARD COMPOSITION AND STOCK OWNERSHIP ON THE ADOPTION OF "POISON PILLS"

PAUL MALLETTE
Colorado State University
KAREN L. FOWLER
University of Northern Colorado

This research examined the relationships between board composition and stock ownership and the passage of "poison pill" takeover defense provisions by U.S. industrial manufacturing firms. Results indicate the existence of several antecedents to the passage of poison pills. The impact of board leadership on poison pill decisions depends on the proportion of independent directors on a board. Similarly, the impact of chief executive tenure on such decisions depends on the tenures of a firm's independent directors. Results also suggest that equity holdings significantly enter into decisions to adopt poison pills. Companies are more likely to pass such provisions the lower the equity holdings of inside directors and the higher the equity holdings of institutional investors.

During the merger wave of the 1980s, both the number and dollar value of mergers and acquisitions exceeded those of any other decade. Although this activity has raised a number of concerns, of particular interest to both practitioners and management scholars has been the hostile takeover. Creative, high-risk financing through "junk bonds" and the lax antitrust environment during this period exposed most companies to threats of takeovers.[1] A popular management response to the takeover threat has been to enact poison pill defenses. Some researchers have called poison pills, which are almost always put in place by boards of directors without shareholder approval (Marcil & O'Hara, 1987), the ultimate defensive measure (Norman, 1985; Wheelan & Hunger, 1986). The term actually refers to a family of contingent securities that result in the assumption of unwanted financial obligations by an acquirer, dilution of the acquirer's equity holdings, or loss of the acquirer's voting rights if the issuing firm becomes a takeover target. In a typical plan, stock purchase rights are issued as dividends to the holders

[1] A junk bond is a bond that has a rating below investment grade: BBB, as rated by Standard and Poor's; Baa, as rated by Moody's. This noninvestment-grade subordinated debt has allowed companies that lacked investment-grade debt ratings to borrow much more than their credit rating would normally allow.

of a company's stock. If the pill is triggered—usually by an acquisition of 10–20 percent of outstanding stock—rights holders are entitled to buy shares in the acquiring company, the target company, or both, at a bargain rate. Such purchases would sufficiently dilute the value and voting power of the acquirer's shares that continuing with the acquisition would seriously damage its financial health.

Research on the effectiveness of takeover defenses suggests that hostile takeovers are infrequently attempted against firms having them in place (Pound, 1987). Research on the wealth effects of poison pills has indicated that they have a significant, negative effect on stock prices at their announcement (Ryngaert, 1988; Ryngaert & Jarrell, 1986). In addition, stock prices decline after court decisions that validate poison pills and rise after court decisions invalidating them (Ryngaert, 1988).

Existing evidence consistently shows that when companies are taken over, target shareholders benefit substantially. Target shareholders experience significant abnormal stock price increases of approximately 20 percent in mergers and 30 percent in tender offers. This latter increase has been over 50 percent in some cases in recent years. Bidding firms realize significant abnormal price increases of approximately 4 percent in tender offers and nothing in mergers (Fowler & Schmidt, 1988; Halpern, 1983; Jensen, 1984, 1986; Jensen & Ruback, 1983; Lubatkin, 1987).

However, the directors of a target firm are usually dismissed shortly after a successful takeover. Thus, faced with the possible loss of their jobs and the subsequent loss of power, prestige, and the value of firm-specific "human capital," target directors have an incentive to oppose takeover bids even though shareholders might benefit substantially from an acquisition (Commons, 1985; Jensen & Ruback, 1983; Walsh, 1989). Many analysts argue, however, that shareholders, as owners, should be entitled to freely sell their shares to the highest bidder. The problem with poison pills from this perspective is that they restrain or deter competitive bidding that might result in substantial shareholder gain.

On the other hand, poison pills have been defended as being beneficial to shareholders and the corporations that adopt them. Those who support poison pills generally argue that they are in the best interests of shareholders because they maximize the price received in control transactions and allow management to invest in activities with short-term costs, such as R&D and capital improvement programs, that lead to long-term competitive success (Drucker, 1984: 30; House Subcommittee on Telecommunications, Consumer Protection, and Finance, 1987; Lipton, 1985). We can only speculate about the impact of poison pills on control transactions. However, a number of studies have demonstrated a positive relationship between investment in future-oriented activities and long-term performance (Baysinger & Hoskisson, 1989; Franko, 1989; Hill, Hitt, & Hoskisson, 1988; Hitt, Hoskisson, & Ireland, 1990; Lipton, 1985; Parisi, 1989; Young, 1985). Acquisitions have been blamed, in part, for declining investments (Hall, 1990; Hitt et al., 1990; Hitt, Hoskisson, Ireland, & Harrison, 1991a, b), as has the extensive use of

leverage (Hall, Berndt, & Levin, 1990). However, the market for corporate control has often been viewed as the major force contributing to such declines.

Although those who support takeover protection seldom question the long-term rationale, existing evidence not only fails to support the notion that such protection has short-term effects, but even contradicts it. Several studies have found that stock prices rise with announcements of increased investment expenditures and decline with reduced expenditures (McConnell & Muscarella, 1985; Woolridge & Snow, 1990). Research has also indicated that firms with takeover protection in place do not invest more heavily in future-oriented programs than firms that do not have such protection (Mallette, 1991). In sum, on the basis of the available evidence, poison pills can be viewed as depriving shareholders of the potential gains of a takeover and of reducing their wealth for what appears to be the sake of increased managerial control of firms.

POISON PILLS AND BOARDS

There is still a lack of agreement on the exact role and responsibilities of boards of directors, but it is widely accepted that boards are the formal representatives of firms' shareholders and that they exist to monitor top management performance and protect shareholders' rights and interests (American Law Institute, 1982; Hoskisson & Turk, 1990; Kosnik, 1987, 1990; Lorsch, 1989: 11). For quite some time, corporate governance reformers have actively promoted this governing role of boards, proposing various mechanisms to ensure that effective board governance takes place. In recent years, a major debate has concerned board design and director incentives. Several critics have argued that the design of corporate boards does not lend itself to the effective monitoring-protecting roles that boards should perform. In addition, many have suggested that the low equity held by most directors exacerbates the problem of ineffective governance because they do not have a stake in the success of the firms on whose boards they sit (Geneen, 1984; Jones & Goldberg, 1982; Vance, 1983; Waldo, 1985).

Two related concerns have dominated discussions of board design—director independence and board leadership structure. Independent directors have no ties to a firm on whose board they sit other than their board membership. Leadership structure refers to whether one person or two people serve in the roles of chief executive officer (CEO) and board chairperson (Berg & Smith, 1978; Norton, 1991; Rechner, 1989; Rechner & Dalton, 1989; Weidenbaum, 1986). It is not surprising, then, that the most frequently suggested boardroom reforms are proposals to increase independent representation on boards and to ensure that two people serve in the positions of CEO and board chairperson (Eisenberg, 1976; Norton, 1991; Rechner, 1989). What is curious, however, is that although these notions about board composition and leadership are widely accepted, little is known about the degree to which they contribute to a board's governing effectiveness.

A common research proxy for a board's governing effectiveness is firm financial performance. The results of research linking board composition to financial performance have been mixed. In some instances, boards dominated by insiders (directors with certain firm connections) have been associated with higher performance and in other cases, outsider boards have been associated with higher performance (Baysinger & Butler, 1985; Chaganti, Mahajan, & Sharma, 1985; Waldo, 1985; Zahra & Pearce, 1989). A recent examination of the impact of board leadership on performance revealed no significant difference between the performance of firms with single individuals filling the positions of CEO and chairperson of the board and those with two people filling these positions (Rechner & Dalton, 1989). However, since boards have little responsibility for functional or operating decisions, their effect on financial performance may be indirect at best (Kosnik, 1987). Similarly, research linking board composition and the commission of a variety of illegal corporate acts has revealed no significant effects of board composition (Kesner, Victor, & Lamont, 1986). However, recent research indicates that boards sued for failing to maintain their fiduciary responsibilities tended to have a high proportion of inside directors (Kesner & Johnson, 1990).

Although results from the cited research fail to support the importance of board design for creating or preventing various outcomes, we might question whether the studies adequately tested it. Perhaps additional insights into the antecedents of effective board governance might be gained by examining instances in which boards face critical governance dilemmas. When a conflict of interests between shareholders and managers exists, the actions of a board can be assessed and conclusions drawn concerning the effectiveness of the governance mechanism in representing the rights and interests of the corporation's shareholders.

Kosnik (1987) examined the relationship between board composition and the payment of "greenmail" by corporations.[2] Results indicated that boards that effectively resisted greenmail had more outside directors, more directors with executive experience, and more directors who represented interorganizational transactions than the boards of companies that paid greenmail. Results from a follow-up study showed that companies were more likely to refrain from greenmail the longer the average tenure of their outside directors and the more similar the directors' principal occupations. Results also indicated that the effect of top management's equity interests on decisions to pay greenmail depended on both outsider equity interests and director tenure (Kosnik, 1990).

[2] Greenmail refers to a private transaction in which a company buys back a block of its stock, at a significant premium above market price, from a dissident shareholder who poses a threat to the control position of incumbent management. These repurchases are not available to other stockholders.

Poison pill provisions, which operate by imposing stringent new conditions that must be satisfied before the control of a corporation can be changed, represent another critical governance dilemma. Because poison pills strengthen management's control of a firm, decrease shareholder wealth, and deter takeover bids that may result in significant shareholder gain, they represent a clear conflict of shareholders' and managers' interests. The purpose of this research was to examine some key attributes of board design and stock ownership and determine whether the boards of companies that adopted poison pills exhibited properties that distinguished them from the boards of companies that refrained from passing these defensive measures. This examination helped to identify the issues most relevant for understanding the functioning of boards when they face critical governance dilemmas.

THEORETICAL PERSPECTIVES

Managerial Hegemony Theory

The above discussion points to two competing yet somewhat complementary perspectives on board governance: managerial hegemony theory and agency theory. From a managerial hegemony perspective, boards are weak and ineffectual in providing managerial oversight and representing shareholder interests (Herman, 1981; Kosnik, 1987; Mace, 1971; Vance, 1983; Wolfson, 1984). Supporters of this view argue that managements dominate boards, which act merely as ceremonial rubber stamps. In fact, it has been argued that too many directors act as part of top management rather than as monitors able and willing to reward and penalize management performance (Patton, 1985; United Shareholders Association, 1990; Vance, 1983).

Agency Theory

From an agency perspective, boards are agents for shareholders. From this perspective, boards exist to monitor management performance and protect shareholders' rights and interests. The problems in this relationship stem from a misalignment of the interests of the two groups. When this misalignment occurs, directors are assumed to act in ways that benefit top management and themselves at the expense of shareholders. Examples include seeking excessive compensation and perks, showing risk aversion, and pursuing increased status and prestige (Amihud & Lev, 1981; Coffee, 1986; Vance, 1983; Waldo, 1985). Thus, board effectiveness depends in large part on directors' identification with the interests of a firm's stockholders.

Solutions to agency problems come from structural mechanisms and monitoring devices that reduce the opportunistic behavior of directors and help align their interests with those of a company's shareholders. Structural mechanisms include elements of board design. Monitoring devices include

compensation and incentive schemes that align the interests of directors and shareholders, such as increasing the equity positions of directors and using stock options. The market for corporate control is also a monitoring device (Fama, 1980; Harris & Raviv, 1979; Jensen, 1986; Manne, 1965; Singh, 1975). Although it is clear that poison pills effectively neutralize this latter monitoring device, the impact of stock ownership on the alignment of shareholder and director interests, especially in a takeover context, is less certain.

As Kosnik (1987) noted, the two theories have a similar focus in that they both concentrate on a board's relationship with management and shareholders and assume the existence of control problems representing a conflict of interests between managers and shareholders and manifesting as inefficient managerial behavior. However, managerial hegemony theorists reject the idea of a board as an effective governance mechanism because of the lack of director independence, while agency theorists recognize the governing potential of boards and the disciplinary forces that help to encourage effective governance through the alignment of director and shareholder interests. Although the two theories draw from different conceptual frameworks, they are complementary in identifying structural contingencies that might affect board governing effectiveness when a conflict of interests between directors and shareholders arises.

Thus, rather than suggest that board design and the economic incentive of stock ownership lead to such positive outcomes as improved performance, or that they can reduce negative actions like illegal activity, we considered whether they affect boards' governing effectiveness by enabling them to fulfill one of their major responsibilities—protecting the rights and interests of shareholders. Results may help to clarify the findings of earlier studies and indicate areas for future research.

HYPOTHESES

Board Composition and Demographics

Board composition. Agency theory suggests that effective board governance results when the interests of directors and shareholders are aligned. One of the critical determinants of a board's governing effectiveness is director independence. Outside directors, or people who are not past or current firm employees, are assumed to be independent of management and thus in a better position to represent the interests of a firm's shareholders. However, some outside directors may be more independent than others (Baysinger & Butler, 1985; Dobrzynski, 1991; Hermalin & Weisbach, 1988; Kosnik, 1987). Outside directors who serve a firm as lawyers, bankers, or consultants or who are major suppliers or customers may not be the independent overseers that some believe them to be. In fact, these interdependent directors could be expected to side with management when a board faces a critical governance dilemma. Truly independent directors—those with no ties to a company—may be more effective in representing the interests of the organization's shareholders (Dobrzynski, 1991).

Directors more aligned with management than with shareholders could be expected to seek poison pill protection because these protective measures are generally in management's best interest. Poison pills give managers more job security, provide an opportunity for them to pursue objectives related to their personal well-being, and reduce the market-based discipline of a potential takeover. Because of their assumed concern for shareholder well-being, boards with a high percentage of independent directors should be able to block these actions and keep managers more accountable to shareholders.

> *Hypothesis 1: The higher the proportion of independent directors on a board, the lower the probability that the board will adopt a poison pill provision.*

Board leadership. Managerial hegemony theory suggests that managerial dominance of a board renders it an ineffective governance mechanism. Perhaps the most critical determinant of managerial dominance is the structural component of board leadership. When a single individual serves as both a firm's CEO and the chairperson of its board, managerial dominance is greatly enhanced because that individual is more aligned with management than with shareholders and is likely to act to protect his or her job and enhance personal well-being. And, since the board is dominated by and dependent on this individual, directors will not be in a position to exercise their discretion (Baum, 1986; Baysinger & Hoskisson, 1990; Dayton, 1984; Hoskisson & Turk, 1990; Waldo, 1985). However, both managerial hegemony theory and agency theory suggest that dual board leadership increases board independence while reducing conflicts of interest and thus helps to align the interests of directors and shareholders.

> *Hypothesis 2: The board of a company in which two people occupy the roles of board chairperson and CEO is less likely to adopt a poison pill than a board whose chairperson is also the company's CEO.*

As suggested above, the power and influence of a single CEO-chairperson is a major concern of corporate governance reformers. Many view board leadership as the single most important determinant of board outcomes. Although few would argue with the notion that dual leadership enhances shareholder representation, it is widely believed that increasing the proportion of independent directors on a board helps to increase shareholder representation, even under single leadership. In fact, the New York and American stock exchanges have implemented rules that require all firms listed on the exchanges to have a minimum of two outside directors. In addition, the Securities and Exchange Commission has required firms convicted of engaging in illegal activities to add outside directors to their boards (Vance, 1983). Because a dual leadership structure enhances director independence, we would expect the proportion of independent directors to have a greater impact on governance outcomes when one individual serves in both leadership roles. Thus, it is reasonable to assume that in critical gov-

ernance matters, such as the decision to pass a poison pill, the outcomes of board processes may depend on the interaction between board leadership and the composition of a board's directors.

> *Hypothesis 3: The board of a company in which a single individual serves as CEO and board chairperson is more likely to pass a poison pill provision than a board with dual leadership. However, under single leadership, as the proportion of independent directors on a board increases, the probability of poison pill adoption significantly decreases.*

Length of tenure. Research on groups has demonstrated that length of tenure is relevant to both individual and organizational performance. Long tenures have been associated with heightened organizational commitment (Buchanan, 1974) and conformity to organizational values (Salancik, 1977). When individuals are new to a board, they are likely to be susceptible to existing norms and to pressures to conform because they lack familiarity with their new responsibilities and colleagues. Previous research has indicated that a curvilinear relationship between length of tenure and performance exists, with performance reaching its peak when average tenure approaches the median (Katz, 1982; Kosnik, 1990; Pelz & Andrews, 1976).

A similarly curvilinear relationship between the average length of the tenure of independent outside directors and board resistance to poison pills was expected here. Boards with high-tenure independent directors may be more likely to accept a set of standards and values that they have been operating with for a long period of time. Examples of boards composed of senior directors who have tolerated poor management performance and managerial incompetence are numerous (Dobrzynski, Schroeder, Miles, & Weber, 1989; Mason & Wallace, 1987; Vance, 1983). Boards with low-tenure independent directors can be expected to function in much the same way. New directors trying to fit in and learn about a company and an industry and about how things work in their new situation can be expected to take an approach that is consistent with what management or their more senior colleagues propose.

> *Hypothesis 4: There will be a curvilinear relationship between the average length of the tenure of a board's independent outside directors and a company's resistance to poison pills.*

CEO tenure may be another significant predictor of poison pill passage. The longer a CEO has been with a company, the more entrenched that person is likely to be. This entrenchment comes from the fact that over time, CEOs can influence the composition of their boards through the director nomination process. Additionally, it is logical to assume that, over time, CEOs act to increase their power on their boards and the subsequent agendas that the boards pursue (Finkelstein & Hambrick, 1989; Hill & Phan, 1991; Lorsch,

1989). Poison pills tighten CEOs' grips on their organizations by reducing the probability of hostile takeovers and the subsequent loss of their jobs.

> *Hypothesis 5: The longer the tenure of a firm's CEO, the more likely the firm is to be protected by a poison pill provision.*

However, it is reasonable to assume that the interaction of the tenure of a CEO and the tenure of independent outside directors will affect the decision to adopt a poison pill. For the reasons just mentioned, CEOs with high tenure can be expected to be more entrenched in their jobs and more powerful than CEOs who have held their positions for less time. It follows that high-tenure CEOs will be more able to push poison pills through the approval process, regardless of the length of service of the independent board members. However, when CEO tenure is low, a set of independent directors who have been with a company for a long time is likely to be a much stronger influence than a set of new independent directors would be.

> *Hypothesis 6: The board of a company with a low-tenure CEO is less likely to pass a poison pill provision than the board of a company with a high-tenure CEO. However, for a board with a low-tenure CEO, as the average tenure of the independent directors increases, the probability of poison pill adoption significantly decreases.*

Stock Ownership

Inside directors' equity holdings. In a classic work, Berle and Means (1932) suggested that the separation of ownership from control produces a situation in which conflicts of interests arise between shareholders and their representatives. Agency theory recognizes this fact and addresses the importance of aligning the interests of directors and shareholders. One way to align the interests of these groups is through stock ownership. A number of studies have shown that stock ownership patterns do affect organizations (McEachern, 1975; Palmer, 1973; Saloman & Smith, 1979). It follows that patterns of stock ownership may weigh upon the decision to adopt a poison pill.

High equity holdings by inside directors lower the probability that they will act in ways that are detrimental to stockholders (Kosnik, 1987). When insiders own a significant portion of a firm's stock, they have a strong incentive to enhance its value and act in ways that are in shareholders' best interests. On the other hand, when they have little stake in their company, they have less interest in promoting shareholder wealth and thus can be expected to act in ways that are more self-serving (Malatesta & Walking, 1988).

> *Hypothesis 7: The higher the equity holdings of its inside directors, the lower the probability that a firm will pass a poison pill provision.*

Independent directors' equity holdings. It is reasonable to assume that independent directors' holdings will have a similar effect on decisions to adopt poison pills. Since ownership increases the personal stakes of directors in the companies on whose boards they sit, the interests of directors with significant holdings will be more closely aligned with those of shareholders. This alignment will encourage directors to act in ways that will increase the value of the firm and consequently, the value of their own holdings (Jensen & Warner, 1988).

When directors' personal stakes in the companies on whose boards they sit is small, their motivation to enhance shareholder wealth may also be low, and their incentive to monitor top management may not be as strong as it might be for directors having larger personal stakes. Agency theory recognizes that a frequent weakness of boards is lack of alignment between the interests of directors and shareholders when stock ownership is dispersed (Shleifer & Vishny, 1986). Kosnik (1990) suggested that perhaps the most important guarantee that a board will actively defend stockholders' interests is the existence of directors whose personal interests compel them to monitor top management activities actively and to examine proposals that enhance management control critically.

> *Hypothesis 8: The higher the stock holdings of its independent directors, the lower the probability that a firm will pass a poison pill provision.*

Institutional equity holdings. One of the major trends in stock ownership over the past several decades has been an increase in the holdings of institutional investors. Institutional holdings of U.S. corporations have grown from 12 percent of common stock in 1949 to over 50 percent in many industries today (Graves & Waddock, 1990). Institutions include pension funds, mutual funds, insurance companies, banks, endowments, and foundations. Voting in the 1987 proxy season made very clear the feelings of institutional investors about poison pills: 81 percent of institutional representatives responding to a survey question about these takeover defenses indicated that they did not support them. Recent evidence suggests that institutions are increasingly banding together to try to force boards to repeal some of these measures (Norton, 1991).

Since equity ownership is a source of power that can be used to either support or oppose management, it is necessary to consider ownership in a broader context than the board. The more concentrated a firm's stock ownership becomes, the more potential to oppose management exists. Hill and Snell (1989) argued that stock ownership concentration is important because if information asymmetries between managers and shareholders exist, shareholders may lack the information necessary to determine if management is acting in their best interests. This inability may allow managers to pursue objectives not in the shareholders' best interests. On the other hand, if stock ownership is concentrated, it is much easier for shareholders to coordinate

their actions and demand information from managers with which to assess their performance.

Managers do not always view large institutional holdings with a great deal of affection. In fact, they frequently complain that institutional owners are part of a larger problem that forces them to work for short-term results at the expense of long-term considerations (Lipton, 1985; Norton, 1991). Many managers feel that institutional loyalty can be measured in fractions of a point when institutions are presented with a tender offer.

The results of research on institutional holdings have been mixed. Several studies have found that high levels of institutional ownership are associated with greater R&D expenditures, a proxy for long-term commitment (e.g., Hill & Hansen, 1991; Baysinger, Kosnik, & Turk, 1991). In addition, many institutions are long-term shareholders, holding their shares for up to eight years in some cases (Norton, 1991). However, Graves (1988) found that high levels of institutional ownership suppress R&D spending. These latter findings support the short-term rationale frequently espoused by management teams (Dobrzynski, Schiller, Miles, Norman, & King, 1986; Drucker, 1984; Mitroff, 1987). This concern, coupled with the fact that shareholders do not vote on poison pills, supports the notion that the managers of companies with large institutional holdings will try to protect themselves from the perceived short-term focus of these owners.

> *Hypothesis 9: The higher the level of institutional holdings in a firm, the higher the probability that it will pass a poison pill provision.*

METHODS

Data

The population for this study included all U.S. firms on Standard & Poor's COMPUSTAT 1988 Industrial Files with a Standard Industrial Classification (SIC) code between 2000 and 3999. These are industrial manufacturing firms. Limiting the study to these firms created a homogeneous group of companies to study while simultaneously assuring a generous population size. Additionally, we chose to study industrial manufacturing firms because extensive acquisition activity has taken place in this sector, and concerns over the long-term implications of this activity on national health and well-being have resulted.

We chose to study firms with 1988 COMPUSTAT listings because many companies had passed poison pill provisions by this time. The names of companies that had adopted poison pills and the dates of their adoption were obtained from two organizations that track corporate takeover defenses: New York–based Corporate Control Alert and Washington, DC's Investor Responsibility Research Center. Examination of poison pill activity revealed that, of the 760 poison pill provisions in place through the end of 1988, only

four had been enacted prior to 1985. We did not include these four firms in the analysis. About 95 percent of the provisions were adopted in the 1986–88 period.

An attempt was made to collect the necessary director data from proxy statements for every firm in the population. We analyzed proxy statements for 714 companies of the original population of 904. Missing or incomplete data made it necessary to eliminate 41 additional companies from the study group. The group analyzed consisted of 673 firms. Of this set, 226 companies had poison pills in place and 447 did not. Table 1 profiles the two sets of companies in terms of the research variables of interest. For companies that had not passed a poison pill provision, we collected board composition and other data for 1988, the last year of the study period. For companies that had passed poison pills, we recorded board composition and other data for the year in the 1985–88 period in which the pill was adopted.

Measures

Board composition and characteristics. The classification of board members followed previous research (Baysinger & Butler, 1985). The value of the classification scheme used is that it allows the identification of board members who are independent outsiders as opposed to addressing all outside directors as a homogeneous group. We considered board members to be insiders if they were corporate officers, corporate retirees, relatives of officers, or division heads ($\bar{x}$ = 3.4, s.d. = 1.84). Interdependent board members included financiers, consultants, CPAs, lawyers, and other interdependent decision makers, such as major suppliers or customers ($\bar{x}$ = 2.35, s.d. = 1.59). Independent board members were those who appeared to have no ties to the corporation or whose board they sat. Directors in this category included the directors of public organizations, directors serving on several boards with no primary employer, CEOs of companies with no discernible

TABLE 1
Study Group Characteristics

	Firms with Poison Pills		Firms without Poison Pills	
Variables	**Means**	**s.d.**	**Means**	**s.d.**
Independent directors	44.21	18.05	27.95	19.75
Independent director tenure	7.90	4.65	7.08	6.33
CEO tenure	8.83	8.08	12.53	11.51
Inside director stock ownership	4.49	7.29	16.45	18.24
Independent director stock ownership	1.24	3.85	1.40	5.19
Institutional stock ownership	51.70	15.52	30.54	20.39
ROE	11.20	21.82	10.41	61.15
Debt-to-equity ratio	43.27	126.37	73.18	163.48
Net sales[a]	2,472.02	4,980.01	1,729.16	7,703.92

[a] Net sales is expressed in millions of dollars.

ties to the firm, academicians, investors, or independent decision makers ($\bar{x}$ = 3.3, s.d. = 2.52).

A variable of particular interest was the percentage of independent directors on a firm's board. We obtained this percentage by dividing the number of independent directors on a board by the total number of board members. In addition, it was necessary to distinguish between dual and single board leadership. The necessary information was obtained from proxy statements and Standard & Poor's *Register of Corporations*. A dichotomous variable represented board leadership. Single leadership was coded 1 and dual leadership was coded 2. In the study group, 477 companies had single individuals serving in the dual roles of CEO and board chairperson, and 196 companies had two people in these roles. This ratio is consistent with those in earlier findings (Rechner, 1989).

Tenure data, measured as number of years served on a board, were collected from proxy statements on all independent directors and CEOs. We aggregated and averaged independent director tenure data for each firm.

Stock ownership. We also collected data on each board member's beneficial shares, which are common shares an individual owns or has voting control over and stock options exercisable in the very near future. We recorded the percentage of total shares inside directors and independent directors held for each company. Data on institutional holdings were recorded as the percentage of total shares held by institutions.

Covariates. We included three control variables in the analysis. Following previous research, we used return on common equity (ROE) as a measure of performance. Firms performing poorly are assumed to be at a greater risk of a hostile takeover because poor performance lowers stock price and thus makes a company a better deal by reducing its "market-to-book" value. Thus, we expected poor performers to enact pre–tender offer defenses such as poison pills. Conversely, firms performing well are assumed to be less attractive takeover targets and thus less likely to enact poison pills. We calculated ROE as a three-year average, using the three years prior to the passage of a poison pill provision for companies that had such provisions in place and the 1986–88 average for companies that remained unprotected.

Capital structure can also be viewed in the takeover context. Since debt-ridden companies are not as attractive to acquirers as their asset-rich counterparts, it is logical to assume that companies with a great deal of debt would not need pre–tender offer defenses like poison pills. In fact, many companies have taken on excessive debt when facing a specific takeover threat in an effort to make themselves less attractive and thus caused the potential acquirer to lose interest. Asset-rich companies, on the other hand, are attractive because an acquirer can use all or part of those assets to help finance the acquisition. We measured capital structure as the ratio of debt to common equity.

Finally, company size may also be related to the adoption of poison pills. The managers of larger firms may have more firm-specific human capital and may face greater personal risk in the event of a takeover than the

managers of smaller firms. In addition, it is reasonable to assume that larger firms have more expertise concerning takeovers and takeover defenses and more resources at their disposal with which to research, draft, and enact these protective measures. We used net sales as a measure of firm size.

Analysis

A dichotomous dependent variable represented the existence or absence of a poison pill. The primary approach employed to test the hypotheses was logistic regression analysis. We used this statistical technique to estimate the probability that companies would be protected by a poison pill on the basis of the board composition, stock ownership, and control variables discussed herein and performed two separate analyses. The first defined the probability of poison pill protection as a function of the covariates and the board composition and tenure variables (Hypotheses 1–6). To test for a curvilinear effect of independent director tenure, we included the quadratic function of that variable. The second logistic function tested the effects proposed in Hypotheses 7, 8, and 9. This model defined the probability of poison pill protection as a function of the covariates, the board composition and tenure variables, and the stock ownership variables.

RESULTS

Table 2 reports the means, standard deviations, and Pearson product-moment correlations for the research variables.

Table 3 presents results of the logistic regression analysis. Results indicate that the proportion of independent directors on a board has little to do with the probability that a firm will be protected by a poison pill provision. These findings are contrary to those predicted in Hypothesis 1 and thus fail to support the contention that independent outsiders do a better job of protecting the rights of an organization's shareholders.

Results also suggest that when two people fill the positions of CEO and board chairperson, the probability of poison pill adoption decreases. Of the 226 poison pills that were in place for firms in this study, only 26 were passed when there was dual leadership. Conversely, under single leadership, the probability of a firm having a poison pill in place increased. Board leadership's strong relation to the passage of poison pills supports Hypothesis 2.

However, results also indicate a significant interaction between leadership structure and the percentage of independent directors on a board. Results still indicate that the probability of a firm with dual leadership adopting a poison pill is low. The difference in the probability of pill adoption is greater, however, when the percentage of independent directors is high. When the percentage of independent directors is low, firms with dual leadership are still less likely to pass a poison pill than those with single lead-

TABLE 2
Descriptive Statistics and Correlations

Variables	Means	s.d.	1	2	3	4	5	6	7	8	9	10
1. Poison pill adoption	0.33	0.47										
2. Independent directors	33.30	20.66	.37**									
3. Leadership structure	1.30	0.46	−.23**	−.14**								
4. Independent director tenure	7.35	5.84	.07	.27**	−.02							
5. CEO tenure	11.32	10.65	−.16**	−.13**	−.07†	.18**						
6. Inside director ownership	12.52	16.50	.34**	−.37**	.11**	−.16**	.19**					
7. Independent director ownership	1.35	4.79	−.02	.13**	.02	.09*	−.01	−.03				
8. Institutional ownership	37.17	21.16	.45**	.40**	−.17**	.17**	−.09*	−.47**	−.05			
9. ROE	10.67	51.62	.01	−.01	−.05	−.01	−.01	.02	−.05	.01		
10. Debt-to-equity ratio	63.35	152.83	−.09*	.01	.03	−.01	−.07†	.07†	.08*	−.12**	.03	
11. Net sales[a]	1,973.65	6,931.95	.05	.16**	−.12**	.01	−.11**	−.17**	−.05	.16**	.02	.01

[a] Net sales is expressed in millions of dollars.
† $p < .10$
* $p < .05$
** $p < .01$

TABLE 3
Results of Logistic Regression Analysis

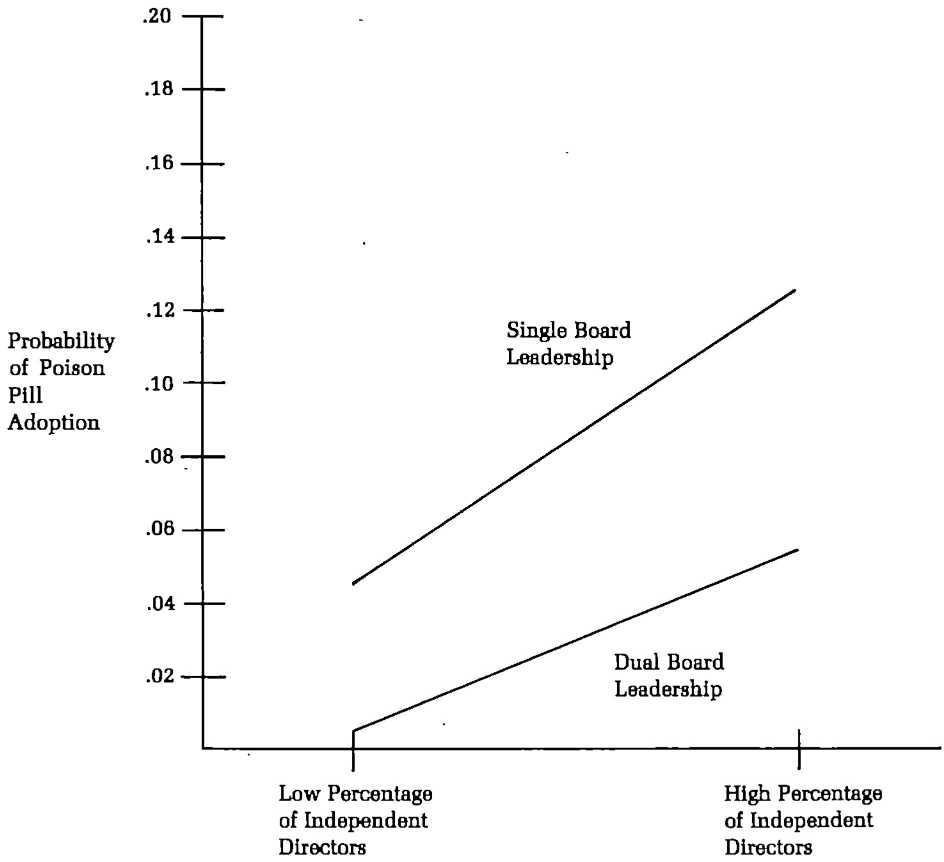
Variables	Model 1 Parameter Estimate	Model 1 Wald Chi-Square	Model 2 Parameter Estimate	Model 2 Wald Chi-Square
Intercept	−0.342	0.151	0.870	0.785
Covariates				
ROE	−0.000	0.008	0.000	0.024
Debt-to-equity ratio	−0.001	1.897	−0.001	1.710
Net sales	−0.000	2.827*	−0.000	3.980**
Board composition-characteristics				
Independent directors	−0.018	0.883	−0.029	1.890
Leadership structure	−2.835	15.993***	−3.040	14.970***
Independent director tenure	0.087	2.055	0.076	1.423
Independent director tenure squared	−0.002	0.292	−0.001	0.113
CEO tenure	0.001	0.004	0.008	0.188
Interactions				
Independent directors by leadership structure	0.040	6.469**	0.046	6.873***
CEO tenure by independent director tenure	−0.004	4.750**	−0.004	4.827**
Ownership concentration				
Inside directors			−0.043	11.841***
Independent directors			−0.009	0.160
Institutions			3.569	30.004***
Goodness-of-fit index[a]	614.302		516.380	
df	10		13	
Percentage of correct predictions for model	76.23		77.11	

[a] The index was defined as $G^2 = -2 \log L$.
* $p < .10$
** $p < .05$
*** $p < .001$

ership, but the difference in the probability is reduced (see Figure 1). The interaction, although significant, is different from that proposed in Hypothesis 3.

In addition, findings do not indicate the curvilinear relationship between independent director tenure and poison pill adoption Hypothesis 4 proposes. Similarly, findings do not support the effect of CEO tenure on the poison pill decision proposed in Hypothesis 5. However, a significant interaction between CEO tenure and independent director tenure is present. Results indicate that the effect of CEO tenure on the decision to enact a poison pill depends on the tenure of the independent directors. When the average tenure of independent directors is low, regardless of CEO tenure, the probability of poison pill passage is roughly the same as the probability of no

FIGURE 1
Interaction of Board Leadership Structure and Percentage of Independent Directors[a]

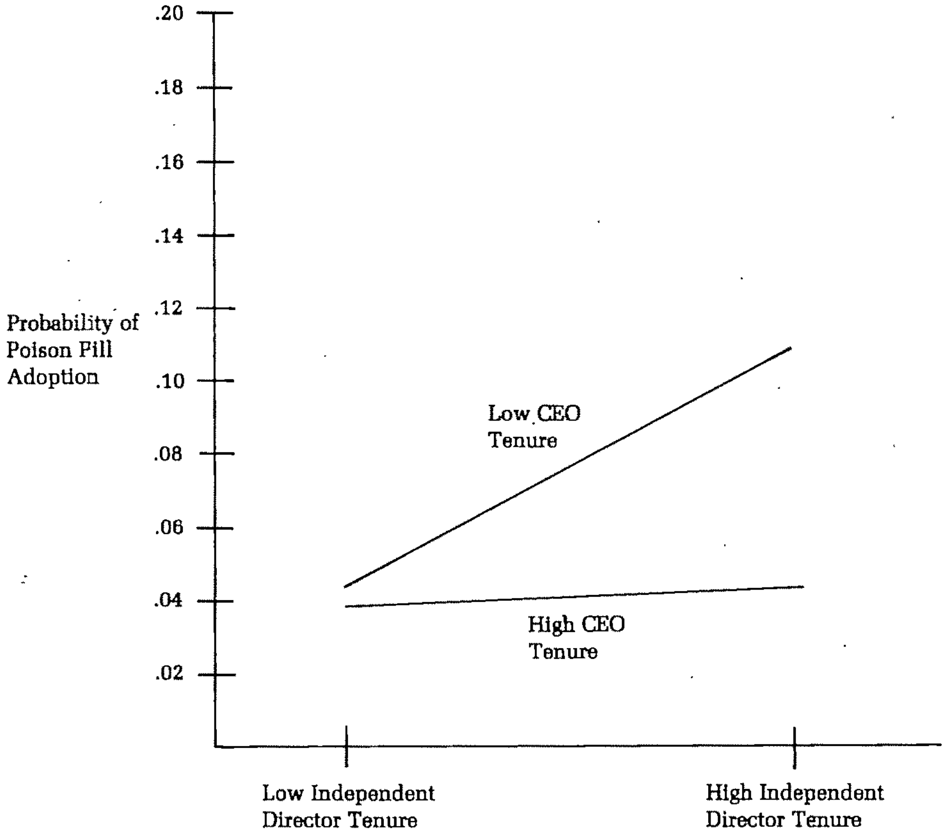


[a] We derived the plotted endpoint values from the model by calculating predicted probabilities for single and dual board leadership and the percentage of independent directors on a board (low = mean − 1 standard deviation, high = mean + 1 standard deviation) while fixing the other variables at observed proportions or mean values (Cohen & Cohen, 1983).

passage. The probability of poison pill passage is roughly the same when independent director tenure is high and CEO tenure is high. However, when independent director tenure is high and CEO tenure is low, the probability of pill adoption increases (see Figure 2). This interaction is contrary to that proposed in Hypothesis 6.

With respect to stock ownership, results indicate that equity holdings by independent directors have no significant effect on poison pill passage. These findings fail to support Hypothesis 8. Results do indicate, however, that stock ownership by inside directors is a significant predictor of poison

FIGURE 2
Interaction of CEO and Independent Director Tenure[a]



[a] We derived the plotted endpoint values from the model by calculating predicted probabilities for different values of the tenure of the CEO (low = mean − 1 standard deviation, high = mean + 1 standard deviation) and different values of independent director tenure (low = mean − 1 standard deviation, high = mean + 1 standard deviation) while fixing the other variables at observed proportions or mean values (Cohen & Cohen, 1983).

pills, in support of Hypothesis 7. In addition, institutional holdings appear to be a good predictor of poison pill passage. Results indicate that firms with relatively high levels of institutional holdings are more likely to pass a poison pill than firms with lower levels of institutional holdings. These findings strongly support Hypothesis 9.

Finally, results indicate that neither ROE nor level of debt are significant predictors of poison pill adoption. However, findings suggest that firm size is a fairly good predictor of poison pill adoption, although not as anticipated. Instead of larger firms seeking protection from the market for corporate control, it appears that smaller companies are more actively seeking this protection.

DISCUSSION

This research shares a thread with previous studies that have examined the relationships between various board attributes and organizational outcomes. The questions of whether or not board composition and director incentives make a difference in the effective governance of corporations and when they do so are of consequence. Focusing on the takeover context, this study did not provide support for the notion that independent directors enhance the governing effectiveness of boards, as agency theory suggests.

Perhaps an issue that needs to be explored further is leadership structure. It appears that those who criticize an arrangement whereby one person is both a firm's CEO and its board's chairperson may have good reason to do so. Since a CEO is a professional manager, it is very easy to see how a conflict of interests can arise when, as chairperson of the board, that person must make decisions that affect his or her own well-being. When this situation exists, shareholders may be given a lower priority than they should be. Researchers have argued that the power and influence of a CEO-chairperson provide an opportunity to increase job security and personal well-being at the expense of shareholders. Since poison pills lower stock prices, discourage offers that shareholders, as owners, should be able to evaluate and decide on themselves, and increase managerial control of a corporation and its benefits, their adoption is viewed as a measure of ineffective governance.

Managerial hegemony theory suggests that when a powerful CEO-chairperson dominates a board, the amount of meaningful oversight the board provides is reduced. Since a board's chairperson establishes its agenda and gives outsiders most of their information about the organization, board members are very dependent on this individual. Also, because a CEO-chairperson usually controls the director nomination process for both inside and outside directors, the selection process may seek out people who are more likely to follow that individual's lead. In either case, the influence of independent representation is reduced. These conditions may explain why a CEO-chairperson is a stronger source of influence than are independent directors. Although the presence of independent directors may give the appearance of balanced representation, single leadership may compromise their effectiveness.

Agency theory can also provide some insights into the findings of this study concerning board leadership. Agency theory suggests that dual leadership leads to increased board independence and thus allows directors more discretion in the decisions they make. Thus, dual leadership can be viewed as a structural tool that encourages governing effectiveness and aligns the interests of directors and shareholders. Our finding that few poison pills were passed under conditions of dual leadership supports this view.

The significant interaction between the percentage of independent directors and board leadership is also noteworthy. Findings suggest that the percentage of independent directors on a board may moderate the impact of

board leadership. Firms with a dual leadership structure are still less likely than firms with single leadership to pass poison pills. The difference in this probability, however, is greater when the percentage of independent directors is low. When the proportion of independent directors is high, companies with dual leadership are still less likely to pass poison pills than their single-leadership counterparts, but the difference in the probability is decreased. These findings support the notion that independent directors may make a difference in the poison pill decision; however, the interaction is contrary to expectation. It appears that a high proportion of independent directors on a board may compromise the effectiveness of the dual leadership structure.

Drawing on our initial theoretical discussion, we would expect a high proportion of independent directors to be associated with a low probability of poison pill adoption, even when two people serve in the roles of CEO and board chairperson. However, it is reasonable to assume that, because of information asymmetries, outside directors do not possess the knowledge or information necessary to evaluate poison pill proposals (Baysinger & Hoskisson, 1990). In these situations, a powerful CEO-chairperson may be able to push a poison pill through the adoption process regardless of the percentage of independent directors on a board.

However, another plausible explanation for these results may lie in our classification of independent directors as those with no determinable ties to the organization on whose board they serve. A large number of independent directors so defined are, however, also CEOs themselves. Perhaps a common mind-set among these CEO-directors influences their positions on matters of corporate governance. One example may be their response to the market for corporate control. When faced with a generalized takeover threat, directors who are CEOs may "circle the wagons" and indiscriminately oppose forces that could ultimately affect their control positions in their own companies. Or perhaps directors who are also CEOs are more likely to take a future-oriented perspective and pass poison pills to distance their companies from the pressure to realize short-term gains. Takeover protection may enable managers to focus on the long term and undertake actions that may negatively affect short-term earnings but enhance the future competitive position of a firm.

This same rationale may partly explain the findings concerning CEO and director tenure. Although our findings did not support their hypothesized main effects, the significant interaction between these two variables is noteworthy. When veteran independent directors surround a new CEO, the probability of poison pill adoption increases. For all other combinations of CEO and independent director tenure, the probability of a firm's having or not having a poison pill is about the same. Since many independent directors are also CEOs, it is easy to see how they might influence a board on matters, such as corporate control, about which they feel strongly. An inexperienced CEO may be reluctant to challenge a group of veteran CEOs even though they are on the former's board. Perhaps newly appointed CEOs go

through a transition period in which they are very open to the influence of senior board members who, after all, recently gave them their jobs (Fredrickson, Hambrick, & Baumrin, 1988). As a result, these CEOs may be less likely to take a contrary position on some governance matters. Although this explanation is consistent with some of the research on the impact of tenure on various outcomes, it disagrees sharply with managerial hegemony theory.

Another major component of this research was examination of the importance of stock ownership in the poison pill decision. Agency theory suggests that the economic incentive stock ownership provides is an effective way to align the interests of shareholders and directors. We found no support for the notion that increasing the stakes of independent directors in the companies on whose boards they sit encourages more effective governance. The equity holdings of independent directors simply did not affect the poison pill decision. The economic incentive stock ownership provided was not strong enough to overcome the temptation of passing these protective measures. Perhaps the fact that independent directors generally hold very little stock in the companies on whose boards they sit explains this pattern.

Insider ownership, however, did affect the probability that a firm would pass a poison pill. Results suggest that a board was more likely to adopt a pill when inside director holdings were low. When insiders have low equity stakes in their companies, they are more likely to act in ways that secure their positions, even though shareholders may pay the price for this added job security. These results parallel previous findings (Malatesta & Walking, 1988) and lend support to the idea that economic incentives are key, a notion on which agency theory is based.

Results also indicate that the importance of stock ownership is not confined to board members. Institutional ownership has a significant impact on the probability that firms will pass poison pills. As hypothesized, large institutional holdings are associated with poison pill adoption. Given the changing nature of stock ownership and the understandable temptation of institutions to look at only the financial impact of a tender offer on their stock portfolios, managers have sought to reduce takeover threats. When faced with tender offers, managers cannot count on institutions to be loyal to a target company or to its managers' long-term visions. Viewing institutional holdings as a block of shares likely to be voted in favor of an acquirer appears to have been a motivating force in decisions to enact the takeover protection studied.

Taken together, these findings suggest that the relationships between various board attributes and poison pill adoptions, especially those involving interactions, should be interpreted with care. Because this study focused only on the adoption of poison pills, we cannot predict the effects of the study variables in other contexts or on overall board governing performance. Although responding to the market for corporate control is an extremely important aspect of the corporate governing process, it is only a part of it. Perhaps in other contexts board composition and director incentives do

affect organizational outcomes in desirable ways. As noted previously, there is a good deal of popular support for the notion that they do. An important research challenge is to understand how board composition and incentive schemes affect the involvement of corporate directors in other governance matters. We must also avoid generalizing our findings to industry groups other than the one studied here.

In addition, our findings should be interpreted with caution because the firms studied in some ways constrain them. The use of COMPUSTAT data introduced a survivor bias into the results because none of the companies studied had been acquired by the end of the study period. The covariates incorporated into the research design helped to rule out the effects of possible confounding variables, but it is not clear whether the boards of firms that were taken over during the study time frame had governance structures and director incentive systems that distinguished them from the firms used in this study. Future research that examines the composition and incentive systems of the boards of surviving firms as well as those of firms that were taken over may provide additional insights into the factors that affect the governing process. These insights may further qualify the results presented here.

Another question naturally raised by the issue of nonsurvivors is the long-term effects of both takeover protection and acquisitions. Research has suggested that long-term investments tend to decrease following an acquisition (Hall, 1990; Hitt et al., 1991a, b). Thus, it is possible that poison pills may enhance the long-term prospects of companies, even though their short-term wealth effects on shareholders are negative. These are important issues that future research efforts need to examine.

The findings presented here extend understanding of the governing performance of boards. In this study, the critical measure of governing effectiveness was the decision to adopt a poison pill provision. Findings illustrate how a variety of key board and ownership attributes affect governing performance. Our results, combined with those of previous studies, indicate that these attributes are a useful point of departure for examining and understanding the antecedents and outcomes of the governance process.

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Paul Mallette is an assistant professor of strategic management in the College of Business at Colorado State University. He received his Ph.D. degree in strategic management from the University of Nebraska at Lincoln. His current research focuses on corporate governance, boardroom processes and reform, and the market for corporate control.

Karen L. Fowler is an associate professor of management in the College of Business at the University of Northern Colorado. She received her Ph.D. degree in strategic management from the University of Nebraska at Lincoln. Her research interests include corporate governance, strategy content and organizational performance, and executive compensation.

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ORGANIZATIONAL CULTURE AND EMPLOYEE RETENTION

JOHN E. SHERIDAN
University of Alabama at Birmingham

This study investigated the retention rates of 904 college graduates hired in six public accounting firms over a six-year period. Organizational culture values varied significantly among the firms. The variation in cultural values had a significant effect on the rates at which the newly hired employees voluntarily terminated employment. The relationship between the employees' job performance and their retention also varied significantly with organizational culture values. The cultural effects were stronger than the combined exogenous influences of the labor market and the new employees' demographic characteristics. The cultural effects are estimated to have resulted in over six million dollars' difference in human resource costs between firms with different cultural values. Implications for research on person-organization fit are discussed.

The publication of *Organizational Climate and Culture* (Schneider, 1990) provided a thoughtful analysis and integration of the development of organizational culture theory and research. A decade after Pettigrew (1979) first introduced the concept of organizational culture to the literature, his conclusions in that book were, "The most serious cause for concern is the lack of empirical study of organization culture in the 1980's" (Pettigrew, 1990: 417). This article reports the results of such an empirical study examining an important cultural effect thought to influence organizations' productivity (Kopelman, Brief, & Guzzo, 1990). The research investigated whether particular cultural values help or hinder organizations in retaining their most productive employees.

BACKGROUND AND HYPOTHESES

Previous studies of employee turnover have suggested the importance of taking a macro perspective in studying human resource retention. Baysinger and Mobley (1983) criticized the traditional research focus on relationships between individual variables and job terminations. They argued that human

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resource managers cannot attempt to manage employee turnover by influencing the termination decisions of each employee. Instead, the overall termination rate is an organizational number that must be effectively controlled.

Others (Abelson & Baysinger, 1984; Boudreau & Berger, 1985) have suggested that an effective human resource management strategy should balance the cost of replacing the employees who leave against the cost of retaining those who stay. Since it is generally more expensive to replace highly productive employees than to replace weak performers (Cascio, 1982), a cost-effective human resource management strategy will attempt to minimize turnover among strong performers. Furthermore, since all employees will eventually leave an organization, the strategy should induce new employees who perform well to stay longer while encouraging weaker performers to leave at earlier seniority (Peters & Sheridan, 1988).

Unfortunately, there is little research evidence on how organizations can best accomplish these goals. McEvoy and Cascio's (1985) meta-analysis of 20 turnover studies indicated that some human resource management practices, such as job enrichment programs, have consistent but only moderate effects ($\phi = .17$) on turnover rates across organizations. Other practices, such as realistic job previews, have very weak ($\phi = .09$) and inconsistent effects on turnover rates. Terborg and Lee (1984) found that the variation in annual turnover rates across organizations was related to local labor market conditions and the demographic characteristics of employees but that organizational climate variables had very weak relationships with turnover rates.

McEvoy and Cascio's (1987) meta-analysis of another 24 turnover studies indicated that an organization's stronger performers tend to have lower turnover rates than weaker performers during particular calendar periods ($r^c = -.28$). They found that the strength of the inverse relationship between job performance and turnover varied significantly with the length of the calendar period investigated and labor market unemployment rates but reported no moderating effects for organizational variables. Peters and Sheridan (1988) and Barkman, Sheridan, and Peters (1992) also indicated that new employees' job performance was significantly related to their retention rates. The difference in the retention rates of strong and weak performers varied widely across organizations, but no human resource management moderating variables were identified.

Kerr and Slocum (1987) and Kopelman and colleagues (1990) argued that the variation in employee retention across organizations may be related to organizational culture values. Those authors suggested that an organization's cultural values influence its human resource strategies, including selection and placement policies, promotion and development procedures, and reward systems. Different strategies result in psychological climates that foster varying levels of commitment and retention among employees working in different organizations.

Kerr and Slocum (1987) further suggested that organizational culture values may moderate differences in the retention rates of strong and weak performers. They reported that some organizations have cultures that emphasize values of teamwork, security, and respect for individual members. These values foster loyalty and long-term commitment to the organizations among all employees, regardless of their job performance. Other organizations have cultures that emphasize personal initiative and individual rewards for accomplishing specific work objectives. These values foster an entrepreneurial norm whereby the organization does not offer long-term security and the employees do not promise loyalty. They suggested that weaker performers would soon leave such a culture, and stronger performers would stay in order to "exploit the organization until better rewards could be gotten elsewhere" (Kerr & Slocum, 1987: 103). Consequently, employee retention rates may be uniformly high for both strong and weak performers in some organizational cultures but in other cultures may vary greatly depending on employees' job performance.

Since this study was conducted in the public accounting industry, employee gender and marital status, as well as market factors such as labor supply and starting salary levels, were considered important exogenous influences on professional staff retention (Bullen & Martin, 1987; Doll, 1983; Gaertner, Hemmeter, & Pittman, 1987; Walkup & Fenzau, 1980). I controlled for those exogenous variables in testing the following hypotheses regarding organizational culture effects on employee retention:

> *Hypothesis 1: Organizational culture values will have a significant influence on retention rates, after the exogenous effects of labor market factors and employee gender and marital status have been accounted for.*

> *Hypothesis 2: An employee's job performance will significantly interact with organizational culture values in influencing retention rates. The difference between the retention rates of strong and weak performers will vary significantly depending on the cultural values of an organization, after the exogenous effects of labor market factors and employee gender and marital status have been accounted for.*

Organizational Culture Values

Various questionnaire instruments have been developed to measure an organization's cultural values. Most have been based on a priori assumptions regarding the types of values organization members share (Enz, 1986; Glaser, 1983; Sashkin & Fullmer, 1985) or the behavioral norms in organizations (Allen & Dyer, 1980; Cooke & Lafferty, 1989; Hofstede, Neuijen, Ohayv, & Sanders, 1990; Kilmann & Saxton, 1983). Viewpoints regarding the validity of using such dimensions to measure organizational culture values vary

(Rousseau, 1990a; Schein, 1985). O'Reilly, Chatman, and Caldwell (1991) proposed a more descriptive approach whereby respondents use a Q-sort procedure to develop a profile of values describing their organization. Over 50 specific dimensions of cultural values have been proposed in the various questionnaire instruments researchers have designed. Rousseau (1990a) grouped all these dimensions into three broad categories describing organizational values and norms regarding (1) the completion of work tasks, (2) interpersonal relationships, and (3) individual behavior.

Many of the empirical studies of organizational culture values have focused on individual or group and department levels of analysis (Brightman & Sayeed, 1990; Chatman, 1991; Enz, 1986; Meglino, Ravlin, & Adkins, 1989; Rentsch, 1990). These within-organization analyses have limited scope since they fail to consider the macro-level effects of varying cultural values across firms (Dansereau & Alutto, 1990). Other researchers (Cooke & Rousseau, 1988; Hofstede et al., 1990; Kerr & Slocum, 1987) have examined variation in cultural values across firms but have typically sampled organizations from widely different industries. Some of these authors have noted that such a design has a potential problem of confounding variation in organizational culture values with what may be broad industry-wide differences in organizations' strategies and management practices. With few exceptions (Rousseau, 1990b), there is little evidence as to what varying cultural values distinguish one organization from another in a particular industry.

This limitation is important since others (Gordon, 1991; Joyce & Slocum, 1990; Martin, Feldman, Hatch, & Sitkin, 1983; Woods, 1989) have argued that there may be only minor within-industry variation in organizational culture values because firms apply similar standards and similar environmental constraints shape the range of corporate strategies. Saffold (1988) therefore suggested that researchers can infer macro organization-level effects on employee behavior only to the extent that they demonstrate that particular cultural values are unique to certain organizations and qualitatively different from the values found in other organizations. The behavioral effect under investigation should be associated with the presence of a unique profile of cultural values found only in those organizations where the effect was observed. The same profile should not be found in organizations in which the behavioral effect was not observed or in which different effects were observed. Before testing the posited influence of cultural values on employee retention, I therefore considered it important to demonstrate that there were significant differences between the profiles of cultural values reported in different public accounting firms.

METHODS

Data

This study was conducted with the cooperation of six international accounting firms having offices located in a large western city. Focusing on

a specific industry in a particular city had the advantage of controlling for variation in regional labor market conditions that could influence retention rates in different cities.

Retention data were collected for all the firms' professional employees hired in this city during a six-year period. The firms hired a total of 1,014 professionals in their tax and audit departments. The study group included only the 904 recent graduates hired for entry-level positions during the study period. I excluded the 110 experienced professionals hired at senior management levels during the period since their mobility patterns would likely be different from those of inexperienced college graduates just entering the profession. Personnel records indicated that 315 of these new employees (34.8%) voluntarily left their firms during the study period. Another 108 (12%) were dismissed or encouraged to leave because of low job performance or limited career potential. I classified these terminations as involuntary. There were 18 new employees (2%) who transferred to different geographical locations of the same firms for which they had been working. The remaining 463 (51.2%) were still actively employed in their initial offices when the study period concluded.

The retention time for each newly hired employee was computed as the number of months that elapsed between his or her hiring and exit dates. The exit date could be a date on which employment terminated, a date on which a transfer occurred, or the last day of the study period. The voluntary retention time for transferred or active employees is a "censored" measure since their total length of employment was not known. Likewise, the voluntary retention time for involuntarily terminated employees is a censored measure since it was not known how long those employees would have voluntarily stayed with the firms had they not left involuntarily. These censored measures are still useful since I knew that the employees had not voluntarily left prior to the censored retention time.

The influence of organizational culture values on voluntary retention rates was examined through survival analysis (Morita, Lee, & Mowday, 1989; Peters & Sheridan, 1988). Survival analysis provides actuarial estimates of the survival and hazard rates of new hires at increasing seniority. The survival rate function indicates the portion of new employees who voluntarily stay in an organization after reaching a particular month in their employment. The hazard rate function describes how the probability of voluntary terminations changes with increasing seniority. The hazard rate estimates the probability of employees leaving during a particular month of seniority, given that they have survived to the beginning of that month.

Cox's (1972) proportional hazards model was used in this study. The advantage of this model is that researchers do not need to make a priori assumptions regarding the distribution of terminal events in a study population (Allison, 1984; Kalbfleisch & Prentice, 1980). The model can be written as:

$$\lambda(t|X, P, C) = \lambda_0\,(t)\,\exp[\beta_i X_i + \beta_i P + \beta_i C + \beta_i (P \times C)],$$

where

β_i = the estimated regression weights,
t = a seniority month during which voluntary terminations occur, subject to right-censoring,
λ_0 = an arbitrary baseline hazard function,
X_i = five exogenous variables measuring labor market conditions and employee gender and marital status,
C = a measure of the contrast between organizational culture profiles,

and

P = employee job performance.

I tested the significance of each variable by examining the difference in the model's cumulative likelihood ratio added by that variable (Harrell, 1990; Yamaguchi, 1991). The statistical analyses was performed with the BMDP SOLO software (Hintze, 1989).

Variables

The new employees' job performance was periodically evaluated through their supervisors' written reviews on multiple performance dimensions, such as technical competence, coordinating ability, and communication skills. In estimating relationships between job performance and hazard rates, researchers must assume that the performance measure used is valid at the exit date. I therefore obtained the most recent evaluations from the firms' personnel records. The performance of terminated or transferred employees was recorded as the evaluation made prior to their exit dates.[1]

The performance dimensions and the criteria used to assess performance on each dimension were nearly identical in the six firms studied. Each firm also used a descriptive scale to arrive at a composite ordinal measure of an employee's overall performance based on the written evaluations on each dimension. Supervisors' composite ratings were the basis for the employees' merit salary adjustments and career advancement decisions. The raw composite ratings were not, however, directly comparable since the range on these composite scales varied across firms. The standard deviation of the composite ratings ranged from .67 to 1.27 for the different firms.

Given the uniformity of the performance evaluation criteria and procedures in the firms studied, it was reasonable to assume that performance standards were consistent across them. I therefore derived comparable performance ratings by standardizing each employee's composite rating relative to the mean rating given all other employees hired in the focal employee's office. The distribution of the standardized performance ratings ranged from -3.66 to $+3.26$ across the six firms. This distribution indicates how many

[1] A limitation of this measurement design is that the survival analysis fails to consider the possibility that earlier changes in an employee's performance could have influenced the job termination.

standard deviations an employee's present performance rating was above or below the mean performance score recorded for all employees hired in an office.

Three exogenous labor market factors could have influenced hazard rates in this city. First, the six firms were very competitive to recruit college graduates with accounting and finance majors. Those who graduated near the tops of their classes continued to have attractive job opportunities available to them even after they started employment. I therefore included each new employee's cumulative grade point average (GPA) in the model as a control variable. The GPA was above 3.00 for 92 percent of the new employees, and the median GPA was 3.50.

Second, starting salaries in this market increased approximately 4 percent annually during the study period. I measured new employees' economic incentives to accept particular jobs by standardizing starting salaries relative to the mean starting salary paid across all firms during a particular calendar year. The standard deviation of the starting salaries ranged from \$833 to \$2,361 in different years. The standardized salary indicates how many standard deviations a salary was above or below the average starting salary paid in the city during a particular year.

Third, each firm focused its recruiting in this market at in-state universities located in or near the focal city. The relocation stress suffered by graduates moving from out-of-state universities to start work in this new city could have influenced hazard rates. The location of a new employee's university was included in the model as a control variable (1 = in-state, 2 = out-of-state). Sixty-two percent of the new employees had graduated from in-state universities, and 38 percent had graduated from out-of-state universities.[2]

Gender and current marital status were also included in the model as exogenous variables reflecting family responsibilities. Of the new employees, 453 (50%) were women and 451 were men. Gender was coded as 0 for women and 1 for men. Current marital status, measured at the end of the study period or at the exit dates of those who transferred or terminated, indicated that 355 employees (39%) were married and 549 were not married (1 = single, 2 = married). Table 1 reports correlations among the employee variables.

The organizational culture values in each firm were measured using the Organizational Culture Profile (OCP) instrument developed by O'Reilly, Chatman, and Caldwell (1991). This Q-sort instrument contains 54 value statements. Each statement is placed in a bell-shaped distribution, with the two statements most characteristic of important values in an organization (OCP score = 9) placed at one end and the two statements least characteristic of the organization's values (OCP score = 1) at the other.

[2] The potential confounding error in this university location measure is that it was not known how many of the out-of-state graduates may have actually had home addresses in the focal city.

TABLE 1
Descriptive Statistics and Correlations for New Employees' Characteristics[a]

Variables	Means	s.d.	1	2	3	4	5	6
1. Gender	0.51	0.50						
2. Marital status	1.41	0.49	.04					
3. Salary	0.00	0.97	.06	.12**				
4. Grade point average	3.54	0.31	−.12**	.11**	.02			
5. University location	1.34	0.47	.03	.01	.10**	.04		
6. Performance	0.00	1.02	−.05	.15**	.07	.21**	.01	
7. Voluntary termination	0.36	0.48	−.06	.04	−.04	.07	.07	.02

[a] $N = 904$.
** $p < .01$

Senior employees, including partners, managers, and senior staff members, were chosen as raters to assure that the OCP profiles reflected the relative importance of organizational values evident during the entire study period. There were 14 to 19 raters in each firm. The raters' seniorities in particular offices ranged from 30 to 264 months, with the median being 58 months. All but one rater had worked in a specific office for over half the six-year study period. An important limitation of this study design, however, is that I did not know whether the terminated employees or those hired near the end of the study period would have agreed with the senior members' perceptions of cultural values.

Using OCP responses from the six offices in the present study as well as data describing nine other organizations, O'Reilly and colleagues (1991) examined the reliability and factor structure of the OCP instrument. They reported alpha coefficients for the entire 54-item Q-sort instrument ranging from .84 to .90 in different organizations. Their factor analysis of the OCP responses from a total of 828 members of 15 different organizations indicated seven common dimensions in the OCP value statements. The seven dimensions were composed of 27 of the 54 value statements.

Three OCP dimensions described norms regarding the completion of work tasks: *Detail*—This dimension includes three value statements describing an organization as having norms stressing the values of being highly analytical, with an orientation toward precision and accuracy. *Stability*—This dimension includes five value statements describing an organization's norms of predictability and rule orientation. *Innovation*—This dimension includes six value statements describing an organization's emphasis on risk taking, responsiveness to new opportunities, and being experimental rather than careful.

Two dimensions described norms regarding interpersonal relationships: *Team orientation*—This dimension includes three value statements describing norms of collaboration and teamwork in the organization. *Respect for*

people—This dimension includes three value statements describing norms of fairness and tolerance.

The final two dimensions described norms regarding individual actions: *Outcome*—This dimension includes four value statements describing organizational norms of high expectations for performance and personal achievement and emphasizing action and results. *Aggressiveness*—This dimension includes three value statements describing norms of competition in an organization.

Individuals' ratings for each OCP dimension were computed as their mean Q-sort scores on all the value statements included in a particular dimension. I estimated the interrater agreement by the interclass correlation for each OCP dimension (Bartko, 1976; James, 1982). The interclass correlations ranged from .09 to .36, with the median value being .23. Although the magnitude of these values does not indicate extremely high interrater agreement, these correlations compare favorably with the results reported for other measures of organizational climate. Interrater agreement on various climate dimensions has ranged from .00 to .50 in 15 previous studies, with the median value being .12 (James, 1982).

The correlations between the raters' seniority and their OCP dimension ratings were very low within each office, ranging from .04 to .18. This pattern suggests that the cultural values remained relatively uniform during the study period since the OCP scores were not associated with the date the rater started employment in an office.[3] Table 2 reports the correlations among the OCP dimensions.

RESULTS

Table 3 reports a multivariate analysis of variance (MANOVA) examining the extent to which cultural values varied among the six firms studied. There were significant differences in organizational culture values (multivariate $F = 3.09$, $p < .01$). The stepdown F tests the unique variance explained by each dimension. These results indicated that the work task values of detail and stability and the interpersonal relationship values of team orientation and respect for people explained most of the variance across firms.

Figure 1 illustrates the profile of mean scores for the OCP dimensions in each firm studied. Consistent with the stepdown F values reported in Table 3, the mean scores in each office were nearly identical for the innovation, outcome, and aggressiveness values. Among the work task values, innovation was perceived as being least important in all firms. This finding is not

[3] It should be noted that the OCP measures were obtained prior to the merger activity that occurred among public accounting firms in 1989. The subsequent merger of several of the participating firms would likely have had an effect on the cultural values in the offices.

TABLE 2
Descriptive Statistics and Correlations for Organizational Culture Variables[a]

Variables	Means	s.d.	1	2	3	4	5	6
1. Detail	6.31	1.01						
2. Stability	4.88	1.02	.30**					
3. Innovation	4.14	0.80	−.19	−.56**				
4. Team orientation	5.27	1.10	−.31**	−.12	−.05			
5. Respect for people	4.17	0.90	−.17	−.10	−.17	.27**		
6. Outcome	6.50	0.82	−.24*	−.26*	.25*	−.18	.18	
7. Aggressiveness	5.56	1.12	.18	−.08	.15	−.39**	−.27**	.26*

[a] N = 96.
* $p < .05$
** $p < .01$

TABLE 3
Results of MANOVA for Organizational Culture Profiles

Cultural Dimensions	Stepdown *F*	Multivariate *F*
Detail	7.80**	
Stability	3.30**	
Team orientation	4.97**	
Respect for people	5.51**	
Outcome	1.74	
Aggressiveness	1.03	
Innovation	0.37	
All dimensions		3.09**

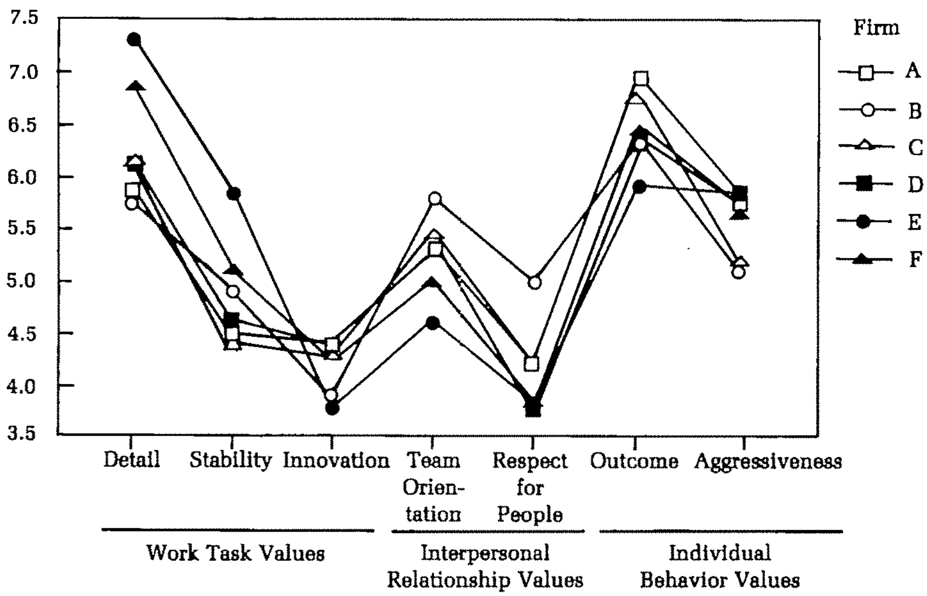
** $p < .01$

surprising, given the close regulation of the tax and audit work performed in public accounting. The individual behavioral norms were also very similar in each firm, with outcome values being more important than aggressiveness values. This similarity may be attributable to the "P^2 form" of strategic management found in public accounting partnerships (Greenwood, Hinings, & Brown, 1990).[4]

Discriminant function analysis was used to classify firms having different cultural values. Two discriminant functions explained 90 percent of the variance in the seven cultural dimensions. The first function explained 61

[4] Greenwood and colleagues described the P^2 form as one having a clear separation between strategic and operating responsibilities. Partners, who often had temporary assignments in the firm's headquarters, were responsible for strategic planning. Partners in the regional offices were responsible for operations and marketing services to clients. Headquarters held regional offices accountable through a well-understood but loose set of financial and market outcomes expected from each region. Moreover, since all the partners were personally liable for the firm's legal and fiduciary responsibilities, there was less emphasis placed on aggressiveness values in regional offices in favor of employee norms to follow established codes of professional behavior.

FIGURE 1
Mean Scores on Organizational Culture Values



percent of the variance and placed strong weight on the detail and stability dimensions. The pooled within-office correlations indicate that detail and stability values were significantly correlated with the first function's scores in each office. The second function explained 29 percent of the variance and placed strong weight on the interpersonal relationship values of respect for people and team orientation. The pooled within-office correlations indicate that team orientation and respect for people had significant positive correlations with the second function's scores in each office, and detail, aggressiveness, and innovation were inversely correlated with that function's scores.

Table 4 depicts the classification of firms having different cultural profiles. Offices A, B, and C had positive mean scores on function two, indicating a culture emphasizing the interpersonal relationship values of team orientation and respect for people. Offices E and F had positive mean scores on function one, indicating a culture emphasizing work task values of detail and stability. Office D had negative mean scores on both functions.

The classification analysis shows the percentage of the firm's actual raters who were predicted to be members of a particular firm based on the similarity of their individual OCP ratings compared to other raters. The distinction between the raters' perceptions of different types of cultures is illustrated by the A,B,C and E,F boxes highlighted in Table 4. The mean percentage on the diagonal in the A,B,C box indicates that only 38.0 percent of the A, B, and C raters were predicted to be members in their correct firm. The mean percentage off the diagonal in the A,B,C box indicates that nearly

TABLE 4
Results of Discriminant Function Analysis

Actual Firm	Number of Raters	Firms' Mean Values		Percent of Raters Predicted to Be Members in Firm					
		Function 1	Function 2	A	B	C	D	E	F
A	19	−0.77	0.40	26.3	15.8	21.1	15.8	15.8	5.3
B	18	−0.24	1.16	5.6	61.1	16.7	5.6	5.6	5.6
C	15	−0.67	0.12	33.3	20.0	26.7	13.3	6.7	0.0
D	14	−0.32	−0.50	14.3	14.3	14.3	35.7	14.3	7.1
E	16	1.75	−0.01	0.0	0.0	0.0	6.3	68.7	25.0
F	14	0.45	−0.51	16.7	8.3	0.0	8.3	25.0	41.7

the same percent (37.5%) were incorrectly predicted to be members in the other two firms in the A,B,C box. This finding suggests that there was little discrimination among the culture value profiles in firms A, B, or C.

There was also little discrimination in the culture value profiles between firms E and F. The mean percentage on the diagonal in the E,F box indicates that 55.2 percent of the E and F raters were predicted to be members in their correct firm. The mean percentage off the diagonal in the E,F box indicates that 25 percent were incorrectly predicted to be members in the other firm in the E,F box.

There was a clear distinction, however, between the profiles in firms A, B, and C compared to the profiles in firms E and F. Only an average 6.5 percent of the A, B, and C raters were predicted to be members in firms E or F. Likewise, only an average 4.2 percent of the E and F raters were predicted to be members in firms A, B, or C. As illustrated in Figure 1, the profiles in firms A, B, and C indicate a strong interpersonal relationship culture that emphasized team orientation and respect for people values. The profiles in firms E and F indicate a strong work task culture that emphasized detail and stability values.

The classification results indicated that the profile of culture values in firm D was nondistinguishable from the profiles in other firms. Firm D raters were often incorrectly predicted to be members in some other firm.

For analytical purposes, I coded the qualitative difference among cultural profiles as a contrast effect in the proportional hazards model. The strong interpersonal relationship culture in offices A, B, and C was coded +1, and the strong work task culture in offices E and F was coded −1. The culture variable was coded as neutral 0 for office D.

Table 5 reports the results for the proportional hazards model. The model explained a small but significant portion of the variance in the voluntary hazard rates across all seniority months (D = .09).[5] A large portion of variance went unexplained, indicating an obvious need for further model

[5] D is similar to the R^2 value used in regression models: $D = \chi^2/(n - K + \chi^2)$, where n = sample size and K = number of variables (Hintze, 1989).

TABLE 5
Proportional Hazards Model

Independent Variables	β	χ^2	D	χ^2
Gender	−.30	5.14*		
Marital status	−.13	0.99		
Salary	.01	0.30		
Grade point average	.04	0.18		
University location	.22	2.79		
Total control model[a]			.02	8.81
Performance	−.32	19.97**		
Culture	−.22	7.35**		
Performance by culture	.14	3.90*		
Total model[b]			.09	35.90**

[a] $df = 5$.
[b] $df = 8$.
* $p < .05$
** $p < .01$

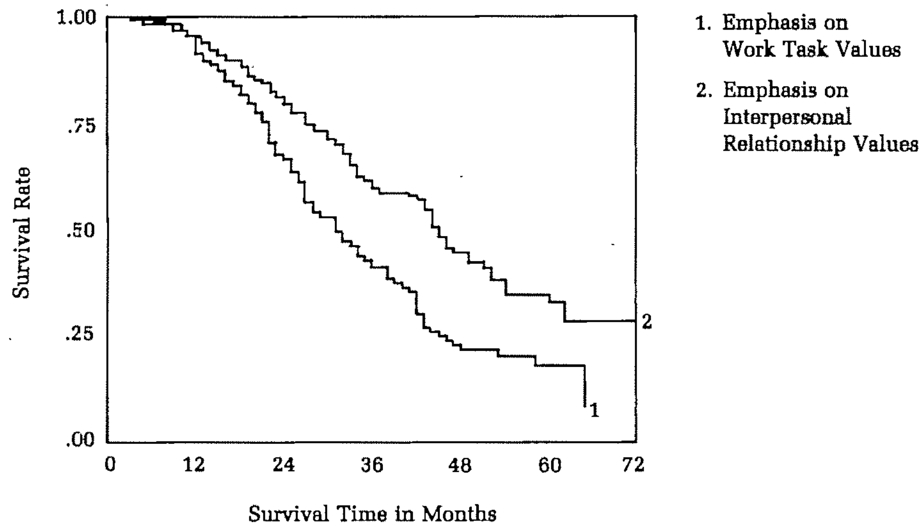
development. Although the explained variance is somewhat lower than that in previous regression models of employee turnover, it is important to remember that the hazards model was an attempt to explain variation in the probability of newly hired employees leaving voluntarily during specific months of seniority, not simply variation in whether employees stayed or left the firms (Peters & Sheridan, 1988).

Most of the variance was explained by performance and culture rather than by the exogenous control variables, which accounted for only 2 percent of the variance ($D = .02$). Gender was the only exogenous variable having a significant effect in the model ($\beta = -.30$), indicating that women had higher hazard rates than men.

The findings support Hypothesis 1. The culture contrast variable had a significant effect in the model ($\beta = -.22$). Hazard rates were significantly lower for new employees working in the culture emphasizing interpersonal relationship values than they were for those working in the culture emphasizing work task values.

Figure 2 illustrates this significant effect of culture. The survival curves during the first 12 months of employment were nearly identical in both cultures. After 12 months, individuals voluntarily quit their jobs at a much faster rate in the culture emphasizing work task values than in the culture emphasizing interpersonal relationship values. On the basis of the test discussed in Lee (1980), the difference between the two survival curves was highly significant (Peto-Wilcoxon $\chi^2 = 19.21$, $p < .01$). The findings indicate that new employees voluntarily stayed 14 months longer in the culture emphasizing interpersonal relationship values than in the culture emphasizing work task values. The median survival time was 45 months in the strong interpersonal relationship culture, compared to 31 months in the strong work task culture.

FIGURE 2
Voluntary Survival Rates in Two Organizational Cultures



The data shown in Table 5 also support Hypothesis 2. Both the performance effect ($\beta = -.32$, $p < .01$) and the performance-by-culture interaction effect ($\beta = .14$, $p < .05$) were significant. The latter indicates that the inverse relationship between job performance and voluntary hazard rates varied significantly with organizational culture values.

To examine this interaction, I estimated the survival curves for strong and weak performers—employees who had positive and negative standardized performance ratings—in both organizational cultures. The difference between these survival curves was highly significant (Peto-Wilcoxon $\chi^2 = 18.24$, $p < .01$). The findings indicate that both strong and weak performers had uniformly higher voluntary survival rates in the culture emphasizing interpersonal relationship values. In this culture, there was only a 1 month difference in their median survival times. The median survival time was 44 months for strong performers and 43 months for weak performers. Survival rates were lower in the culture emphasizing work task values, with weak performers terminating at a much higher rate than strong performers. In this culture, strong performers stayed 13 months longer than weak performers. The median survival time was 39 months for strong performers and 26 months for weak performers.

DISCUSSION

Organizational culture has emerged as one of the dominant themes in management studies during the past decade. Although researchers have made theoretical and methodological advances in understanding the development of cultural values in organizations, there has been less progress in

comparing cultural effects on employee behavior across organizations. This study demonstrated that cultural values varied significantly across six public accounting firms with offices located in the same city. Three firms were characterized as having a culture emphasizing the interpersonal relationship values of team orientation and respect for people. Two other firms were characterized as having a culture emphasizing the work task values of detail and stability.

Professionals hired in the firms emphasizing the interpersonal relationship values stayed 14 months longer than those hired in the firms emphasizing the work task values. This large difference in voluntary survival rates has important consequences for organizational effectiveness. Kopelman and colleagues (1990) suggested that cultural values will ultimately influence organizational effectiveness by enhancing the quality of outputs or reducing labor costs. This study cannot demonstrate cultural effects on the quality of firms' tax and audit work for clients. However, it is possible to estimate the effects on human resource costs.

The estimated costs of job terminations have previously been based on the expenses incurred in replacing terminated employees (Cascio, 1982). The survival model suggests an alternative method for estimating termination costs. An organization can never completely avoid replacement expenses but can delay those costs until later seniority periods by increasing the survival rates of new employees. The human resource costs thus represent an opportunity loss of not retaining new people for long. Barkman, Sheridan, and Peters (1992) suggested that this opportunity loss can be estimated by considering the gross profits generated by employees during each month of seniority.

The gross profits per professional employee in public accounting can be determined by subtracting the annual costs of retaining an employee from the annual revenues he or she generates during each year of employment with a firm. Barkman and colleagues (1992) estimated these profits in a city comparable to the one studied here using the firms' average billing fees and hiring, training, and compensation costs from years corresponding to the study period. They estimated that mean profits ranged from $58,000 per professional employee during the first year of employment to $67,000 during the second year and $105,000 during the third year. A firm therefore incurs an opportunity loss of only $9,000 ($67,000–$58,000) when a new employee replaces a two-year employee but incurs a $47,000 loss ($105,000–$58,000) when an employee of three years is replaced.

New employees stayed voluntarily for 45 months in the culture emphasizing interpersonal relationship values and 31 months in the culture emphasizing work task values. I made two simplifying assumptions to estimate the opportunity loss associated with this 14-month difference in median survival times. First, since this difference is based on voluntary survival rates, I assumed that both strong and weak performers were achieving acceptable performance levels and generating the same mean profits in each year of employment. Second, I assumed that the annual profits were distrib-

uted uniformly between 31 and 45 months seniority. Under these assumptions, the 14-month difference in median survival time represents an opportunity loss of approximately $44,000 per new employee [($47,000 − $9,000)/12 × 14] between the firms having the two different types of cultural values. Considering the total number of new employees hired in each office during the study period, I estimated that a firm emphasizing work task values incurred opportunity losses of approximately $6 to $9 million more than a firm emphasizing interpersonal relationship values.

The magnitude of the difference in voluntary survival rates between different organizational cultures raises important questions regarding the significance of person-organization fit in determining employee retention. Other researchers (Chatman, 1989, 1991; O'Reilly, Chatman, & Caldwell, 1991; Schneider, 1987) have argued that the fit between personal and organizational values is very important to employee retention. In his attraction-selection-attrition model, Schneider succinctly described this proposition by suggesting that particular kinds of individuals are attracted to particular organizations and that those who do not fit an organization soon leave. An unresolved research question, however, is whether the match with individual attributes is more important than the retention effects explained by a work situation itself (Davis-Blake & Pfeffer, 1989). The findings of the present study provide two reasons to suggest that person-organization fit may have less influence on employee retention than the situational effects of new employees experiencing particular cultural values.

First, every firm presumably hired some graduates whose personal values made them good "fits" to the firm's cultural values and others who were person-organization "misfits." Those who fit would tend to have significantly higher job satisfaction and intentions to continue working in their firms than those who did not (Chatman, 1991). The retention effects of varying person-organization fit and individual commitment variables found in previous research, however, have been much smaller than the differences attributable to varying organizational culture values in this study. For example, O'Reilly and colleagues (1991) used the same OCP Q-sort method used here to assess the congruence between new employees' personal values and the organizational culture values reported in their offices. Their procedure identified a top quartile of fits, people having the highest congruence between the profiles of personal and cultural values, and a bottom quartile of misfits, those having the least congruence between profiles. The survival curves were nearly identical for the two groups during the first 20 months of employment. The misfits started terminating at a faster rate than the fits only after 20 months. The difference in survival times was a small fraction of the 14-month difference in median survival time found in the present study between firms having different types of cultural values.

The retention effects attributed to varying levels of individual commitment have been somewhat larger, but questions remain regarding the importance of this variable. Kline and Peters (1991) reported that highly commit-

ted clerical employees in a national retail organization had a median survival time nearly three times longer than those having lower commitment. The median survival time for employees with low commitment was 3.8 months, compared to only 10.8 months for those with higher commitment. It would be important to understand the cultural values in this retail organization, since very few new employees stayed for one year, regardless of their organizational commitment.

Lee, Ashford, Walsh, and Mowday (1992) discussed the survival rates of new cadets admitted to the United States Air Force Academy. They partitioned a sample of cadets into comparison groups who reported relatively high and low commitment to the Air Force near the start of their freshman years. Approximately 70 percent of the low-commitment cadets and 90 percent of the high-commitment cadets had survived at the end of the freshman year. The effects of individual commitment, however, diminished after the first year. Nearly 65 percent of the low-commitment cadets and only 78 percent of the high-commitment cadets had survived at graduation. The situational effect of experiencing rigorous cultural values at the academy would appear to have had a stronger influence on cadet retention than the individual commitment levels of entering cadets.

The second reason for questioning the importance of person-organization fit stems from finding a significant interaction effect between job performance and organizational culture. Presumably, new employees who fit should perform better. A relationship between fit and performance would partially explain why stronger performers stayed 13 months longer than weaker performers in the culture emphasizing work task values. Nevertheless, both strong and weak performers stayed much longer in the organizational culture emphasizing interpersonal relationships than in the work task culture. This suggests that the most parsimonious explanation of employee retention may simply be that an organizational culture emphasizing interpersonal relationship values is uniformly more attractive to professionals than a culture emphasizing work task values. Managers may be well advised to foster cultural values that are attractive to most new employees rather than be concerned with the selection and socialization of particular individuals who fit a specific profile of cultural values (Davis-Blake & Pfeffer, 1989).

The question of whether person-organization fit and individual commitment have substantial effects on employee retention not accounted for by the situational influence of particular organizational culture values has important implications for human resource managers. Future research may examine these questions by estimating the survival rates of fits and misfits and of employees with high and low commitment across organizations having different types of cultural values.

The present study was also conducted in a population known to have high career mobility (Lampe & Earnest, 1984). If organizational culture values have an effect on employee retention, it is more likely to appear in this highly mobile accounting profession than in occupations having less mobil-

ity. The generalizability of the research findings may therefore be limited. It remains to be seen whether organizational culture values have as large an effect on retention in other professions and in different types of organizations.

Lastly, it should be noted that the quantitative approach used to measure cultural values in this study has important limitations. Although the findings indicate that perceived cultural values varied among firms, they offer no insight into how or why these cultural differences evolved within the public accounting industry in this particular city. Qualitative assessment of these prior developmental processes may be essential for fully understanding how organizational culture values influence employee retention in specific organizations.

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John E. Sheridan (Ph.D., Pennsylvania State University) is the L. R. Jordan Professor of Health Services Administration at the University of Alabama at Birmingham. His research currently focuses on the implementation of continuous quality improvement programs in the nation's hospitals and nursing homes.

RESEARCH NOTES

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EFFECTS OF FAMILY RESPONSIBILITIES, GENDER, AND CAREER IDENTITY SALIENCE ON PERFORMANCE OUTCOMES

SHARON A. LOBEL
Seattle University
LYNDA ST. CLAIR
University of Michigan

Predictions based on the human capital, gender discrimination, and social identity theories were tested. Individuals with salient career identities were willing to expend extra effort at work and received higher merit increases than people with salient family identities. When we controlled identity salience, neither extensive family responsibilities nor female gender adversely affected merit increases. Family-oriented women with preschoolers received higher merit increases than family-oriented men with preschoolers, but career-oriented men with preschoolers received higher merit increases than career-oriented women with preschoolers.

The extent to which family responsibility affects the performance of employees is uncertain, and its explanatory power relative to that of other potential predictors is unknown. Research on this topic can address existing gaps in theoretical understanding of the links between work and family life (Kingston, 1989; Lambert, 1990; Lobel, 1991a; Sekaran & Hall, 1989). Moreover, such research should answer employer concerns about hiring or promoting women and men with family responsibilities (Lobel, 1991b).

The effects of family responsibility on performance have typically been explained in terms of either human capital or statistical gender discrimination approaches (e.g., Glass, 1990; Konrad & Cannings, 1990). The two approaches are similar in suggesting that family responsibility has an adverse effect on work effort, particularly for women. Relatively low work effort will, in turn, limit opportunities for positive performance outcomes, such as merit increases and promotions.[1]

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[1] Performance outcomes encompass short-term variables such as merit pay as well as long-term variables, such as promotions and increases in salary and hierarchical level. For the purposes of this cross-sectional study, we focused on short-term outcomes.

Human capital theory focuses on the voluntary choices made by individuals in allocating investments, such as time and effort, to work and family roles. For example, Becker (1985) argued that because housework and childcare are more effort-intensive than leisure activities, individuals with household responsibilities will economize on the effort expended at work by seeking relatively undemanding jobs. Human capital theory would predict, then, that individuals' family responsibilities will have a direct, negative effect on work effort and an indirect effect on performance outcomes, mediated by work effort.

Statistical sex discrimination theory focuses on the attitudes and behaviors of employers who deny women equal access to career opportunities and rewards. For example, Schwartz stated: "Men continue to perceive women as the rearers of their children, so they find it understandable, indeed appropriate that women should renounce their careers to raise families" (1989: 67). Men are more likely than women to believe not only that job performance suffers because of parental responsibilities (Covin & Brush, 1991), but also that a woman's current performance provides no guarantee of future performance because her family status may change unexpectedly (Rosenfeld, 1980). When a woman's role investments are viewed as unreliable, employers may be less likely to reward her performance. For example, Drazin and Auster (1987) found that among the managers of a financial services organization, men received greater returns on each point increase in their performance ratings than women did. Gender discrimination theory would predict, then, that female gender has a direct, negative effect on performance outcomes, irrespective of work effort.[2]

Neither gender discrimination nor human capital theory can easily explain research findings suggesting favorable effects of female gender (Gerhart & Milkovich, 1989; Megdal & Ransom, 1985; Tsui & Gutek, 1984). Social identity theory (Tajfel & Turner, 1985) offers a third approach to explaining differences in work effort and performance outcomes. According to that theory, people classify themselves into multiple hierarchically organized social categories (Stryker, 1968). Identity salience is a key concept of social identity theory. Identity salience motivates attitudes and behavior in support of an identity (Ashforth & Mael, 1989; Burke & Reitzes, 1981; Callero, 1985; Jackson, 1981; Lobel, 1991a; Santee & Jackson, 1979; Stryker & Serpe, 1982). For example, Braun and Wicklund (1988) reported that when students of business and economics centered their thoughts on the identities of "manager" and "economist," respectively, they expended more effort on an identity-relevant task. Similarly, Kirschenbaum and Merl (1987) found that

[2] Importantly, Bielby and Baron (1986) demonstrated that statistical gender discrimination based on the perceived fluctuating commitments of women is not simply rational—free of prejudice—as some economists (Aigner & Cain, 1977; Arrow, 1972) have argued. For example, although economists have assumed that women quit more than men, Bielby and Baron reviewed recent studies showing no gender differences in rates of quitting when human capital and job characteristics were controlled.

among Israeli working women, those with a strong career orientation worked longer hours than those with a weaker career orientation. Therefore, social identity theory predicts a direct, positive effect of career identity salience on work effort and an indirect effect on performance outcomes, mediated by work effort.

HYPOTHESES

Main Effects

In this study, we tested the relative contributions of human capital, gender discrimination, and social identity theories in predicting work effort and a performance outcome, merit increases awarded to employees of both genders. Following human capital theory, we predicted:

> *Hypothesis 1: With the effects of gender and career identity salience controlled, a high level of family responsibility will be associated with relatively low work effort.*

Following social identity theory, we predicted:

> *Hypothesis 2: With the effects of family responsibility and gender controlled, a high level of career identity salience will be associated with a high level of work effort.*

Following both human capital and social identity theories, we predicted:

> *Hypothesis 3: Work effort will mediate the effects of family responsibility and career identity salience on merit increases.*

Following gender discrimination theory, we predicted:

> *Hypothesis 4: With family responsibility, career identity salience, and work effort controlled, women will receive lower merit increases than men.*

Interaction Effects

Human capital theory predicts that family responsibilities will have a negative effect on work effort. If there is no gender discrimination, women and men whose family responsibilities, effort, and performance are comparable will receive the same merit increases. If there is gender discrimination, however, employers will allocate merit increases differently to such men and women. For example, employers may react to men who have many family responsibilities more positively, because they assume that the men need or want more income and status than women in a similar situation (Rosenfeld, 1980). Therefore, we predicted:

> *Hypothesis 5: With work effort controlled, the negative effect of family responsibilities on merit increases will be stronger for women than for men.*

Social identity theory predicts a negative, direct effect of family identity

salience on work effort. If there is no gender discrimination, women and men with similar levels of family identity salience, effort, and performance will receive the same merit increases. If there is gender discrimination, however, employers will allocate merit increases differently to such men and women. For example, Johnson and Scandura (1994) found that men were not penalized in terms of salary for being "feminine"; women, however, were so penalized. If the feminine gender role stereotype depicts women as having salient family identities, then family women, but not family men, should have lower merit increases than career men and women. These arguments led us to predict:

> *Hypothesis 6: The negative impact of a salient family identity on merit increases will be stronger for women than for men. Women with salient family identities will receive lower merit increases than women with salient career identities, with work effort controlled. There will be no differences in merit increases for men with salient family or career identities.*

Following the logic presented in the two previous sections, we also predicted a three-way interaction of gender, identity salience, and family responsibility:

> *Hypothesis 7: Women with salient family identities and many family responsibilities will receive lower merit increases than men with similar characteristics.*

METHODS

Survey Procedures

The study population consisted of individuals residing in the United States who had participated in the executive education program at the business school of a large midwestern university between 1986 and 1989. Since our purpose was to test the hypotheses for men and women rather than for employees in general, we attempted to achieve a gender-balanced, rather than a representative, study group. Therefore, we surveyed all of the 709 women who had been in the program. Because there were more program participants from Illinois, Indiana, Michigan, and Ohio than from other states, we surveyed every third man from these states and every man from other states until we had identified 1,000 men.

A survey was mailed to each of the program participants identified. The response rate was 61 percent. Among the 1,043 respondents there were 569 men and 474 women. Women were more likely than men to respond to the survey ($z = 3.30$, $p < .001$). For the analyses reported here, we examined a subset of 795 individuals who were either married or parents, or both (465 men, 330 women), because only those individuals completed the identity

salience questions.[3] Women were more likely to be married nonparents (51 men, 125 women; $\chi^2 = 79.54$, $p < .001$) or single parents (13 men, 38 women; $\chi^2 = 23.01$, $p < .001$), and men were more likely to be married parents (401 men, 167 women; $\chi^2 = 118.38$, $p < .001$). The median age was 39 years, with a minimum of 24 and a maximum of 69. On the average, the women studied were younger (37.7 years of age) than the men (40.6; $t = -5.62$, $p < .001$) and had been employed by their current employers fewer years than the men (8.77 vs. 12.01; $t = -6.24$, $p < .001$). Eighty percent of the respondents ($N = 643$) had at least a bachelor's degree. There was no gender difference in education ($t = -1.26$, $p = .20$). The men were more likely to be managers than the women (93.3 vs. 82.4%, $z = 4.72$, $p < .001$). The median salary was $50,000, with a minimum of $18,000 and a maximum of $160,000. The mean salary for the men ($62,670) was significantly greater than the mean salary for the women ($49,520; $t = -8.56$, $p < .001$).

Measures

Human capital predictor variables. Two family responsibility variables were measured, number of children and having preschool children. Twenty-two percent of respondents ($N = 176$) had no children, 19 percent ($N = 150$) had one child, 37 percent ($N = 295$) had two children, and 22 percent ($N = 174$) had three or more children. Preschool child was a binary variable with a value of 1 indicating that a respondent had at least one child under the age of 6 ($N = 218$, 27%) and 0 indicating no preschool child ($N = 577$, 73%).

Identity salience predictor variable. Career identity salience was measured by a five-item scale ($\alpha = .76$). One item was "Select the response which best describes you and your day-to-day priorities: I am primarily a family person; I am a family and career person but lean a bit more towards family; I am a career and family person; I am a career and family person but lean a bit more towards career; I am primarily a career person." The other items, adapted from Lodahl and Kejner (1965), were "The major satisfactions in my life come from my family" and "The most important things that happen to me involve my family"; "job" replaced "family" in two otherwise identical items. Each identity salience item was rated on a five-point scale with "strongly disagree" and "strongly agree" as anchors. Items were reverse-scored as necessary so that higher values indicate more career orientation. We derived a scale total by summing the individual values.

Work effort mediator variable. Work effort was assessed by a single item, "I am willing to put in a great deal of effort beyond that normally expected in order to help this organization be successful," which was taken from Porter, Steers, Mowday, and Boulian's (1974) organization commitment scale. Respondents indicated agreement on a five-point Likert-type scale with "strongly disagree" and "strongly agree" as anchors. To check the

[3] Data were collected as part of a larger survey on workplace cross-gender relationships.

validity and reliability of our single-item measure of effort, we performed a secondary analysis of data collected at two times by Blegen, Mueller, and Price (1988), who used an identically worded effort item. For their subsample of male and female managers from five hospitals in the Rocky Mountain area ($N = 186$), we found that the test-retest reliability of the effort item for data collected in January and August was .69 ($p < .001$). At both times, effort was positively correlated with the number of hours worked per week ($r = .32$, $p < .001$, and $r = .31$ $p < .001$). Managers' self-reports of willingness to put in effort beyond what was normally expected, measured in January, were significantly, negatively correlated with self-reports of the number of single days absent in the prior six months, measured in August ($r = -.23$, $p < .001$).

Performance outcome dependent variable. The performance outcome measured was the size of the most recent merit increase an individual had received, defined as the percentage of salary increase in the prior year. Tsui and Gutek (1984) suggested the use of this measure in research like ours because women typically have shorter tenure in organizations, and tenure, organizational level, and experience may influence actual base salary.

Control variables. The size of a merit increase has been positively correlated with tenure, education, and managerial responsibility (Medoff & Abraham, 1980) and negatively correlated with base salary and age (Freedman, 1978; Heneman & Cohen, 1988). Therefore, we included age, tenure, salary, education, and position (managerial or not) as control variables.

Analysis

We were interested in assessing the effects of variables relevant to the human capital, gender discrimination, and social identity theories concurrently, so we used hierarchical regression analysis. Correlations among the variables ranged from $-.36$ to .59, revealing no evidence of extreme multicollinearity (r's $> .8$). Durbin-Watson d-statistics for the dependent variables ranged from 1.90 to 2.01, indicating the absence of correlated residuals.

Hierarchical multiple regression analysis were performed using the statistical package SPSS-X. In the first equation, we regressed merit increases on the control variables, age, education, tenure, position, and salary, in step 1, adding family responsibility, gender, and career identity salience in step 2 and work effort in step 3. In the second equation, we regressed effort on the demographic control variables in step 1 and family responsibility, gender, and career identity salience in step 2. In separate analyses of interaction effects, we added interaction terms to the equations, entering them along with family responsibility, gender, and career identity salience in step 2.

To test the direct effects of family responsibility and career identity salience on work effort (Hypotheses 1 and 2), we examined the beta weights for the family responsibility variables and career identity salience yielded by the second equation. To test the mediating effect of work effort on merit increase (Hypothesis 3), we followed the procedure Baron and Kenny (1986) recommended. Therefore, in addition to testing direct effects of the inde-

pendent variables on effort, we also tested for significance of the direct effects of family responsibility, career identity salience, and effort on merit increase in equation 1. To test the direct effect of gender on merit increase (Hypothesis 4), we examined the beta weights for gender in equation 1. We assessed the direct effects of the interaction terms on merit increase (Hypotheses 5, 6, and 7) using equation 1 with interaction terms included.

RESULTS

Table 1 presents the means, standard deviations, and correlations for the variables. Tables 2 and 3 summarize results of the hierarchical multiple regression analyses for the equations with and without interaction terms, respectively.

Hypothesis 1 predicts that a high level of family responsibility will be associated with relatively low work effort. As Table 2 shows, when we controlled for the effects of identity salience and gender, neither increasing numbers of children nor the presence of preschoolers had a significant, direct effect on work effort. Thus, the prediction derived from human capital theory was not supported.

Hypothesis 2 predicts that a high level of career identity salience will be associated with high levels of work effort. The direct effect of career identity salience on work effort was positive and significant, as predicted ($\beta = .17$, $p < .001$). Thus, the prediction derived from social identity theory received support.

Hypothesis 3 predicts that work effort will mediate the effects of family responsibility and career identity salience on merit increase. Since Hypothesis 1 did not receive support, only results related to career identity salience were relevant. Although career identity salience had a direct effect on merit increase ($\beta = .10$, $p < .01$), effort had no direct effect on merit increase ($\beta = .04$, $p = .29$), indicating that effort does not mediate the relationship between career identity salience and merit increase.

Hypothesis 4 predicts that women will have lower merit increases than men. In the regression models, men were coded 0 and women were coded 1. The direct effect of gender on merit increase was not significant ($\beta = .06$, $p = .11$). Thus, results did not support gender discrimination theory.

Hypotheses 5, 6, and 7 predict that two- and three-way interactions of gender, human capital, and identity salience will affect performance outcomes. As Table 3 shows, of the predicted interactions, only the three-way interaction was significant. This effect was significant for the presence of preschool children ($\beta = -.85$, $p < .05$) but not for number of children. To interpret the interaction, we compared the results from the full model across the four subgroups of interest (women with and without preschoolers and men with and without preschoolers) at different levels of career identity salience. Contrary to the expectation detailed in Hypothesis 7, we found that family-oriented women with preschoolers received higher merit increases than family-oriented men with preschoolers, but career-oriented women

TABLE 1
Means, Standard Deviations, and Correlations[a]

Variables	Means	s.d.	1	2	3	4	5	6	7	8	9	10
1. Identity salience	12.70	3.75										
2. Gender	0.42	0.49	.08*									
3. Preschool child	0.27	0.45	−.16***	−.14***								
4. Number of children	1.59	1.06	−.11**	−.36***	.15***							
5. Age	39.41	7.53	.08**	−.19***	−.36***	.47***						
6. Education	3.62	1.17	.07*	−.05	.04	−.07*	−.03					
7. Tenure	10.67	7.78	.05	−.21***	−.25***	.26***	.59***	−.22***				
8. Position	1.11	0.32	−.13***	.17***	.05	−.12***	−.21***	−.02	−.13***			
9. Salary	57.21	22.57	.16***	−.29***	−.07*	.16***	.31***	.25***	.25***	−.28***		
10. Work effort	4.62	0.70	.18***	−.04	.02	.03	.02	−.04	.07*	−.15***	.16***	
11. Merit increase	7.32	4.85	.12***	.06*	.06*	−.10**	−.17***	.03	−.13***	−.01	.13***	.08*

[a] N = 795.
* p < .05
** p < .01
*** p < .001

TABLE 2
Results of Hierarchical Regression Analysis without Interaction Terms[a]

Variables	Equation 1: Merit Increase			Equation 2: Work Effort	
	Step 1	Step 2	Step 3	Step 1	Step 2
Age	−.19***	−.18***	−.17**	−.09*	−.09
Education	−.05	−.05	−.05	−.08*	−.08*
Tenure	−.09*	−.08	−.08	.05	.05
Position	.00	.00	.01	−.12***	−.11**
Salary	.22***	.22***	.22***	.16***	.14***
Number of children		−.01	−.01		.03
Preschool child		.02	.02		.04
Gender		.06	.06		.01
Identity salience		.11**	.10**		.17***
Work effort			.04		
R^2	.07***	.09***	.09***	.05***	.08***

[a] N = 795.
* $p < .05$
** $p < .01$
*** $p < .001$

TABLE 3
Results of Hierarchical Regression Analysis with Interaction Terms[a]

Variables	Equation 1: Merit Increase			Equation 2: Work Effort	
	Step 1	Step 2	Step 3	Step 1	Step 2
Age	−.19***	−.17**	−.17**	−.09*	−.09
Education	−.05	−.04	−.04	−.08*	−.08*
Tenure	−.09*	−.07	−.07	.05	.05
Position	.00	.01	.01	−.12***	−.10**
Salary	.22***	.22***	.22***	.16***	.15***
Number of children		.05	.07		−.48
Preschool child		−.82*	−.81*		−.42
Gender		−.05	−.03		−.64*
Identity salience		−.07	−.06		−.33
Gender × number of children		−.13	−.15		.61
Gender × preschool child		.58	.57		.41
Gender × identity salience		.15	.13		.80
Number of children × identity salience		−.15	−.17		.51
Preschool child × identity salience		1.12**	1.10**		.46
Gender × number of children × identity salience		.23	.25		−.60
Gender × preschool child × identity salience		−.86*	−.85*		−.42
Work effort			.03		
R^2	.07***	.11***	.11***	.05***	.08***

[a] N = 795.
* $p < .05$
** $p < .01$
*** $p < .001$

with preschoolers received lower merit increases than career-oriented men with preschoolers.

Because the introduction of multiple interaction terms increases multicollinearity in a model, Neter, Wasserman, and Kutner (1989) advised caution in interpreting significant interaction terms. Although multicollinearity was not severe enough to preclude estimation of the model in this case, it did make it more difficult to assess the relative importance of the effects of the independent variables when the interaction terms were included in the equation.

DISCUSSION AND CONCLUSIONS

Our results indicate that the salience of an individual's career identity, for both men and women, is an important variable for researchers to consider when assessing determinants of work effort and the sizes of merit increases. The effects of career identity salience, though modest, were stronger than the effects associated with gender or family responsibility.

Our methods and our findings contrast with those of Glass (1990) and Konrad and Cannings (1990), who reported that gender discrimination provided a better explanation of performance outcomes than human capital theory. The dissimilarity of our results and theirs may be traced to differences in the tests of human capital theory used. Glass did not measure extent of family responsibility directly, and Konrad and Cannings did not compare men and women.

One of the most interesting findings of our study is the interaction effect showing that family-oriented women with preschoolers received higher merit increases than family-oriented men with preschoolers, but career-oriented women with preschoolers received lower merit increases than career-oriented men with preschoolers. These results are consistent with Johnson and Scandura's (1994) finding for a group of accountants that having a self-reported "masculine" style was associated with lower salaries for women but not for men; but our results differ from Johnson and Scandura's finding that having a self-reported "feminine" style was associated with lower salaries for women but not for men. Our findings suggest that merit increases may be allocated on the basis of conformity to gender role stereotypes. To determine whether employers are responding to actual differences in work performance or allocating rewards according to their own beliefs about appropriate gender role behavior will require additional research that explores a broad set of behaviors associated with investment in work and family roles for individuals with similar levels of family responsibility and identity salience.

We found that career identity salience had direct effects on a subjective measure of effort expended at work and on merit increases, but we did not find that effort mediated the relationship between career identity salience and merit increases. From the standpoint of social identity theory, therefore, we can conclude that individuals' definitions of themselves appear to affect both self-evaluations and external evaluations; but further research on the

relevant processes is needed. For example, as our data are cross-sectional rather than longitudinal, we cannot rule out the possibility that positive performance outcomes contribute to career identity salience (Hoelter, 1983; Howard & Bray, 1988). In addition, researchers need to determine how individuals' definitions of themselves relate to specific behaviors that may affect work performance and evaluation. For example, are men and women with salient career identities equally likely to take a day off when a child is ill?

In validating our work effort item, we found that it was correlated with behavioral measures, such as the number of hours worked and the number of days absent. If effort translates into strong performance, the lack of a relationship between effort and merit pay suggests widespread inequities or inefficiencies in the determination of merit pay. These problems may arise from poor design and implementation of performance evaluation methods and compensation systems. Additional variables we did not examine, such as company profitability and supervisor characteristics (Heneman & Cohen, 1988), may also account for the low value of R^2 in our regression equations.

The generalizability of findings from this group of upper-level employees, all of whom were married men and women or single parents, merits challenge in future research. Variables such as access to high-quality child care, the work status of spouses, and supervisor and spouse support with respect to family responsibilities may contribute to positive performance outcomes. Inclusion of these variables in a test of human capital and gender discrimination hypotheses might yield results different from ours.

Our finding that age had a negative effect on merit increases, despite age having no significant effect on effort, may indicate age discrimination. Hitt and Barr (1989) found that age had no main effect on starting salaries; our results suggest that age discrimination may occur in the form of subsequent lower merit increases. Stereotypes about age-related differences in motivation and productivity may affect a variety of personnel actions (American Association for Retired Persons, 1990). Future research should investigate how job-relevant and job-irrelevant variables interact to influence different performance outcomes.

In sum, we view these findings as tentative and in need of replication with data from a more heterogeneous group of respondents and a variety of objective measures of performance and career success. Because research on effects of family responsibility, career identity salience, and gender on performance outcomes can have important practical, as well as theoretical, consequences, further investigation is clearly warranted.

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Sharon Alisa Lobel (Ph.D., Harvard University) is an assistant professor of management at Seattle University. Her research interests focus on managing ethnic diversity, women in management, and new conceptions of the relationships between work and family life.

Lynda St. Clair is a candidate for a doctoral degree in the Department of Organizational Behavior and Human Resource Management at the School of Business Administration of the University of Michigan. Her research is centered on the concept of commitment, with an emphasis on how organizational members cope with multiple commitments such as work and family obligations.

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ASSOCIATE MEMBERSHIP PROGRAMS: INNOVATION AND DIVERSIFICATION IN NATIONAL UNIONS

JACK FIORITO
Florida State University
PAUL JARLEY
University of Iowa

This article examines the establishment of associate membership programs by national private sector unions. We used theories of innovation and diversification to develop hypotheses relating organizational and environmental characteristics to union decisions to establish such programs. Data from a variety of sources, including a telephone survey, were used to develop measures, and the hypotheses were tested with logistic regression analysis procedures. Predictions involving the scope of union strategies, the jurisdiction of construction unions, the organizing of "knowledge workers," and representation on a key American Federation of Labor and Congress of Industrial Organizations (AFL-CIO) policy committee received the strongest support.

Associate membership in a national union provides individuals with an opportunity to affiliate with the union, independent of any union-employer bargaining relationship. Whereas traditional membership stresses a union's role as a bargaining agent, associate membership stresses national unions' providing benefits directly to members. Such benefits typically include offering consumer services, like credit cards and travel services, at discount rates but can also include more conventional union services, such as conducting political lobbying for members' benefit and publishing newsletters.

In omitting bargaining roles and stressing direct benefits, these programs represent a potentially fundamental change in the definition of union membership, and possibly in the definition of unions. A number of observers have depicted the development of associate memberships as the most significant union reform in many years. Some have even suggested that it might be a solution to the problems of declining traditional memberships experienced by most unions (e.g., Arnold, Pollock, & Bernstein, 1985: 96; Heckscher, 1988: 183).

Skeptics counter that probably well under 100,000 associate members have been enrolled outside the public sector (e.g., Northrup, 1991: 335).

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Even some union officials have trivialized the concept. An official of a major private sector union commented: "We think we can organize real members, not play members" (Karr, 1991: 1). Thus, associate memberships show no immediate signs of taking hold on a broad scale.

Associate memberships may ultimately come to be an "aborted excursion" (Hinings & Greenwood, 1988: 30–31) for many unions. But it is still early in the development of associate memberships, and observers should not equate the present number of associate members with the significance of the establishment of such a membership form. Altering the basis for membership is a fundamental decision that goes to the heart of an organization's identity. For unions, known for conservatism in their strategies and structures (Craft, 1991), such an innovation is especially significant. Further, if unions principally use associate membership programs as temporary devices for converting nonunion workers into traditional union members, the programs may never have large numbers of members, even if they are successful. Finally, even if these programs prove to be failures per se, the direct benefits approach they entail has already been incorporated into many unions' traditional membership arrangements, and may be a significant legacy. For these reasons alone, apart from the numerical significance of associate members, explaining the incidence of associate membership programs among national private sector unions is an important area of study.

In undertaking this inquiry, we hoped to accomplish three principal objectives. First, in examining a significant policy option for national unions, we would enhance understanding of decision-making processes within these organizations. Second, we hoped to gain insight into the meaning of associate memberships: Are they tactical in the sense of representing an alternative means of ultimately enrolling traditional members (Ichniowski & Zax, 1990), or are they strategic in the sense of representing a genuinely new direction for private sector U.S. unions? Finally, by relating our modeling effort to theories of diversification and innovation, we hoped to gain insight into the applicability of these theories to alternative organizational forms.

THE GENESIS AND DIFFUSION OF ASSOCIATE MEMBERSHIP PROGRAMS

Enrolling traditional members normally requires that a union gain majority support among employees in a representation election conducted by the National Labor Relations Board or a similar body. Failure to gain majority status generally means no bargaining rights and no new members. The growing difficulty unions have gaining members via elections is well documented (e.g., Fiorito & Maranto, 1987). Chaison and Dhavale (1990) noted that gains from elections have fallen dramatically, with current trends implying a reduction in private sector unionization from the current 14 percent to a steady-state level under 3 percent. In 1982, such scenarios prompted the AFL-CIO to form the Committee on the Evolution of Work, which recom-

mended that "consideration should be given to establishing new categories of membership for workers not employed in an organized bargaining unit," and suggested that "individuals might well be willing to affiliate with a union with which they have had contact or with which they have some logical relationship provided that the costs were not prohibitive" and if they were offered benefits outside the collective bargaining context (AFL-CIO Committee on the Evolution of Work, 1985: 19).

Associate memberships are not entirely new. Many public sector unions evolved out of nonbargaining employee associations (Ichniowski & Zax, 1990), and some still operate as associations in states that deny bargaining rights to public employees. Some private sector unions also have a history of offering membership outside the collective bargaining context (Sherer & Leblebici, 1990; Stewart, 1936: 40–48). Many unions began as mutual aid societies (Webb & Webb, 1920: 23–24), and Saposs (1918: 82) noted that early U.S. unions offered workers various means of mutual aid, or self-help, by directly providing certain benefits to members without employer involvement—notably, unemployment insurance and death benefits. Rogin (1962) argued that the AFL's philosophy of "voluntarism"—shunning government intervention and favoring private arrangements—provided a basis for self-help programs. In recent years, bargaining and legislation have eclipsed unions' mutual aid functions (Fiorito, Gramm, & Hendricks, 1991: 109–110), but some still offer benefits directly to members, particularly those in the public sector.

What is new about associate memberships is the use of union-sponsored services as a major basis for an alternate private sector membership form outside of the collective bargaining context. Individuals pay reduced membership fees to gain access to a set of union-provided benefits. These benefits may include consumer services as well as benefits that have a nexus to employment, such as job counseling, and in some cases associate programs facilitate participation in local politics or community service. Thus, although some unions have had a history of open membership rules or of providing members with forms of mutual aid, few private sector unions have offered benefits as a principal means of attracting workers not immediately interested in collective bargaining services.

Telephone surveys that we conducted and program descriptions in union publications and promotional materials uncovered 20 national union associate membership programs. To be considered relevant to this study, a program had to meet four key conditions. First, the union involved had to have a special membership category for those not covered by a collective bargaining agreement. Second, such associate memberships had to be open to workers who were not merely the union's retired members. Third, the union had to have the majority of its members in private industry. Programs with similar characteristics are not new to the public sector and were developed for somewhat different reasons. Fourth, the union had to offer benefits directly to such members.

All but 2 of the 20 associate membership programs meeting these crite-

ria were established after the 1985 AFL-CIO committee report calling for such programs. The two pre–committee report programs involved unions with a substantial public sector membership. Despite similarities among these 20 programs, the eligibility rules, benefits provided, and dues assessments vary considerably. In a sense, each union has developed a different model reflecting its unique environmental and organizational characteristics. Various models might emphasize union-community ties (both in terms of local job preservation and Latino community interests), special employee needs in largely unorganized industries, political representation in highly regulated industries, postelection service delivery mechanisms in failed organizing campaigns, and means for people who have left union jobs to continue their union affiliation. The models reflect both strategic and tactical uses of associate memberships, with some such memberships regarded as a permanent new union form and others as devices to assist conventional organizing. Yet, in all cases, the relation between associate members and a union stresses tangible benefits flowing directly from the union in exchange for a dues assessment considerably lower than that charged of traditional members for whom the union bargains.

CONCEPTUAL FRAMEWORK AND HYPOTHESES

Although several management perspectives are relevant to the associate membership strategy, theories of diversification and innovation appear most pertinent because associate membership programs can clearly be viewed as an example of both phenomena. They are a form of innovation to the extent that union-sponsored goods and services made available to workers outside a bargaining context is a new initiative for private sector unions. Innovation is typically defined as the adoption of initiatives that are new to the adopting organization (Daft, 1982). The focal innovation takes a specific form; it is an attempt to expand the set of products offered to workers in an attempt to attract new customers, those that unions would be unable to reach via traditional membership. Thus, the innovation takes the specific form of diversification.

The decision to innovate and the choice of form cannot be entirely divorced. A necessary condition for the adoption of an innovation is that its specific form (diversification) be perceived as paying net returns to an organization over and above the available alternatives, including the no-innovation option. Thus, although expecting the innovation literature to help identify factors generally facilitating innovation, we expected the diversification literature to hold the key to why unions adopt this specific innovative form.

Associate membership programs are strategies to enhance membership, and their implementation depends on the efficacy of more traditional membership-enhancing methods. To boost membership, unions can negotiate union security provisions, whereby employees must join the union or at

least support it financially as a condition of continued employment, and accretion agreements, whereby new facilities are added to existing bargaining units, in industries with expanding employment; or organize new members through representation elections or voluntary employer recognition; or merge with or absorb other unions. When traditional methods fail to achieve union growth goals, and particularly when membership declines, union leaders may perceive a performance gap (Daft, 1982). This gap motivates a search for new methods and membership forms.

Diversification into associate member forms seems most likely to occur among unions experiencing membership decline because they are the most likely to feel the need to establish new resource acquisition links. As Pfeffer and Salancik noted, one reason organizations diversify is to reduce dependence upon a single exchange relationship with the environment for resource acquisition and maintenance: "The most effective strategies for dealing with dependence which arises from reliance on a single product or market are those which alter the purposes and structure of the organization so that it no longer requires only a limited range of inputs or serves only a few markets" (1978: 109). In Pfeffer and Salancik's terms, a single exchange relationship, namely, traditional union representation, has become a manifest source of vulnerability in recent years, particularly for many private sector unions (Fiorito & Maranto, 1987). And, as Pfeffer and Salancik noted, the most direct solution to this problem is to reform an organization so that it is dependent on a variety of exchanges; in other words, diversification occurs (1978: 109).

Firms tend to favor related diversification, or that involving technological or managerial know-how, a particular labor requirement, or another synergy based on similarities between a new and an existing business line (Ramanujam & Varadarajan, 1989). There are two obvious reasons why unions would also choose a related rather than unrelated form of diversification. First, unions are partly ideological organizations, whose members and leaders see intrinsic value in their goals of advancing workers' interests. Second, like other organizations, unions perceive economies of scope and scale in particular diversification forms. Although some of the benefits offered to associate members are virtually unrelated to traditional union functions, others, such as lobbying for work-related interests, represent areas of comparative union advantage. Further, since many unions made a decision to offer new services to traditional members at about the same time that they began to offer associate memberships, certain services became an emergent area of union expertise. Thus, benefits of "strategic fit"—significant opportunities for sharing costs or resources via related "value chains" (Porter, 1985: 33, 317–382)—coupled with union ideology account for unions' preference for associate memberships as a form of diversification. Thus,

> *Hypothesis 1: Unions with low membership growth are more likely than other unions to establish associate memberships.*

The benefits of establishing an associate membership program also depend on a union's goals and orientation. Once again, it should be stressed that associate membership programs are mechanisms to attract and retain members. As a result, their value will be related to the value the union places on membership growth and size. By definition, associate membership programs attract members outside the collective bargaining context. They may have little immediate impact on bargaining strategies. To the extent that associate memberships can be used as stepping stones to traditional membership, they may benefit current members by organizing entire product markets and taking wages out of competition, but any benefits from this stepping stone strategy lie in the future and must be discounted accordingly.

In contrast, associate members provide more immediate returns to union political and mutual aid strategies. Increased size is likely to have significant returns in the political arena, where a union's ability to influence policy is often directly related to the size of its membership. In addition, size is often critical to achieving the economies of scale and scope necessary for effective self-help programs (Fiorito et al., 1991). Increases in size help not only workers outside the collective bargaining context, but also traditional members who participate in the self-help programs. For unions following political or mutual aid strategies, the instrumental value (Daft, 1982) of associate memberships is high, and the opportunity to take advantage of related value chains (Hoskisson & Hitt, 1990; Porter, 1985) stemming from the production of direct member service and political representation services enhances the net benefits of these programs. In addition, a broad strategic scope may reflect a general propensity to innovate among private sector unions, which have traditionally stressed bargaining. Thus,

> *Hypothesis 2: Unions that place a strong emphasis on political and self-help strategies in addition to bargaining are more likely than other unions to establish associate membership programs.*

Although an expanded membership and the increased political and economic clout that accompany it are obvious attractions, the costs of such programs may be substantial. Experimentation requires resources and involves risks. Large unions are likely to be able to assemble the resources and staff expertise necessary to provide special programs, such as the legal assistance programs that may be offered to associate members. Large unions are also better able to absorb the risks associated with establishing associate programs. Dewar and Hague (1978) noted that size has many connotations and is related to many organizational variables. We viewed size as a proxy for such organizational variables as slack resources, specialization, and expertise, which have been found to enhance both innovation (Damanpour, 1991) and diversification (Hoskisson & Hitt, 1990). Thus,

> *Hypothesis 3: Large unions will be more likely than small unions to develop associate membership programs.*

Heckscher (1988) argued that "knowledge workers" are more likely than blue-collar workers to prefer loose-knit associate memberships, with their emphasis on cafeteria-style union benefits. Knowledge workers can be defined as those who exercise considerable autonomy and judgment. Such a membership form is more accommodating to their diverse work-related interests than the "one-contract-fits all" approach commonly associated with traditional membership. Associate membership initiatives should be more likely to occur among unions with a history of organizing knowledge workers; these unions will perceive greater instrumental value (Daft, 1982) in such memberships because they expect a high demand for services and possible reputational carryover effects (Nayyar, 1990). A history of organizing knowledge workers also offers advantages associated with expertise and know-how (Hoskisson & Hitt, 1990). Thus,

> *Hypothesis 4: Unions with extensive knowledge-worker-organizing histories will be more likely than others to establish associate memberships.*

A second group of workers among whom demand for such memberships may be high are those who supported unionization in a failed campaign to institute a union at their workplace. These workers have exhibited a preference for traditional unionism and may find associate membership an acceptable substitute. We are struck by the number of unions that claim to use associate membership for this purpose. Where unions have large numbers of such supporters, associate memberships may offer considerable benefits with respect to related cost chains and reputational carryover effects (Hoskisson & Hitt, 1990; Nayyar, 1990; Porter, 1985). Thus,

> *Hypothesis 5: Unions that have won large numbers of supporters in failed representation campaigns are more likely than others to establish associate memberships.*

A potential cost of associate membership programs is their potential to undercut traditional membership forms, and most unions restrict associate forms to circumstances in which traditional membership is not available. If bargained wage and benefit premiums can be had only through traditional membership, there is clearly ample reason for most workers to prefer traditional to associate membership when bargained employment terms are available. Special circumstances prevail, however, in the building construction industry. As Jarley and Fiorito noted (1990: 211), building trades unions have been particularly concerned with undercutting resulting from associate memberships. This opposition to associate member forms may be attributable to the general conservatism of the building trades, but we suggest that it has a rational basis. Unlike most industrial workers, construction workers change jobs frequently and are expected to maintain their union memberships even during times of unemployment. Thus, associate memberships raise the especially thorny question of whether a traditional member could

become an associate member between periods of covered employment. Although this may be the intent of some unions where employment relations are relatively long term, such a policy would undermine construction union traditions and revenues. Construction unions, more than most, are also concerned about reputational implications of certifying a worker as "union quality." Thus, the strong opposition of construction unions to associate memberships may reflect differing perceptions of instrumental value (Daft, 1982) arising from the unusual combination of casual employment in the industry and the unions' role in providing and monitoring worker skills. This contrast with other sectors suggests a negative synergy (Hoskisson & Hitt, 1990; Porter, 1985) and negative reputational carryover effects (Nayyar, 1990) with employers for associate member programs in the view of construction unions. Thus,

> *Hypothesis 6: Construction sector unions will be less likely than others to develop associate membership programs.*

Perhaps more than nondemocratic organizations, unions must consider both the economic and political costs of decisions. Our tabulations from the 1984 Union Image Survey, conducted by Louis Harris and associates, indicated that a majority of traditional members opposed offering associate memberships. Union leaders are most likely to implement controversial programs when they are somewhat insulated from political risks (Heckscher, 1988)—when decision making is centralized. In comparing union membership trends across nations, Freeman suggested that "the otherwise admirable decentralized structure of the American union movement" has inhibited the implementation of reforms (1989: 123). Although addressing international comparisons, Freeman's comments involve much the same reasoning offered by Heckscher. Both authors' arguments jibe with the "ambidextrous model" of innovation, which suggests that centralization may facilitate implementation but inhibit initiation (e.g., Daft, 1982). Highly centralized structures make it easier for leaders to direct an innovation's implementation in the face of resistance to change from lower levels. In suggesting that centralization hastens change, these perspectives are at odds with other theories and most evidence stressing the innovation-facilitating role of organic, or decentralized, structures (Damanpour, 1991).

In contrast, research on diversification led us to consider the interplay of organizational governance and managerial incentives. In addition to organizational incentives to innovate, there are leadership (managerial) incentives, and centralization of decision making may facilitate pursuit of those goals (Hoskisson & Hitt, 1990) as well as maintenance of synergies between different businesses. Thus, research on diversification is somewhat at odds with most theories and evidence on innovation but accords with industrial relations theorists' (e.g., Freeman, 1989; Heckscher, 1988) emphasis on the potential positive effects of centralization on implementation. Thus,

Hypothesis 7: Unions with highly centralized decision making are more likely than other unions to establish associate memberships.

Relations with external stakeholders must also be examined. Associate memberships have been viewed as a major part of the AFL-CIO reform package. As a result, unions that want to maintain good relations with that organization may be more prone to adopt an associate membership program. This seems particularly true of those unions whose leaders participated in the AFL-CIO committee report. The organization has an interest in ensuring that the report's authors implement the reforms that they suggested, and a committee-member union that failed to do so would risk damaging important interunion relationships. From the perspective of innovation theories and evidence, committee participation also may be an indicator of favorable managerial attitudes toward change, which have shown sizeable positive effects on innovation (Damanpour, 1991). The theoretical basis for the effects of managerial characteristics on diversification is not well developed (Hoskisson & Hitt, 1990), but we suspect that the arguments about managerial attitudes toward innovation substantially apply to diversification. These considerations led to our final hypothesis:

Hypothesis 8: Unions whose leaders participated in the AFL-CIO Committee on the Evolution of Work are more likely than other unions to initiate associate membership programs.

DATA AND MEASURES

A major source of information for this study was the National Union Survey (Delaney et al., 1991). Respondents were national union officers, such as presidents and vice presidents, and top-level staff members, such as directors of research. The dependent variable was based on the question: "How frequently has your union used nontraditional membership categories such as 'associate members'?" We contacted unions that indicated using such membership categories again to ascertain the nature of these programs. We also consulted published information on associate member programs in such sources as the *AFL-CIO News*. This information was then used to create a dichotomous variable indicating whether a union had a program meeting the criteria noted earlier (1 = associate membership program, 0 = no program).

Membership change was measured as the percentage change in a union's membership between 1983 and 1987. As the period surrounding the AFL-CIO self-study (AFL-CIO Committee on the Evolution of Work, 1985), when many unions experienced dramatic membership declines, this era seemed an appropriate frame of reference. For AFL-CIO unions, we used the numbers of members reported for per capita payment purposes in 1983 and

1987 to calculate the variable (Bureau of National Affairs, 1989: E1–E2). For nonaffiliates, we took membership figures from Gifford (1984, 1988).

The scope of strategies undertaken was measured by a two-item index taken from the National Union Survey. The items assessed the degree to which a union stressed collective bargaining alone or several strategies, including bargaining, organizing, and political activities (α = .66). High scores indicated a reliance on a broader scope of strategies. Although data for this measure were collected after the establishment of many associate member programs, it assessed a union's long-term strategic orientation, which in all likelihood would have been in place prior to the establishment of an associate membership program.

Size, measured as the logarithm of union membership (in thousands) in 1985, was derived from the same data as membership change. Membership levels do not necessarily connote resources, but other measures of size, including assets and membership levels, tend to be highly correlated with membership (Fiorito & Hendricks, 1987).

Relative demand for associate memberships among the workers a union seeks to organize was measured by two variables. Knowledge worker organizing was the proportion of a union's National Labor Relations Board certification elections that were held in prospective "professional and/or technical" and "office, clerical, and other white collar" collective bargaining units between 1977 and 1985. Lost prospects, calculated from the same election data, was the logarithm of the number of votes cast for a union in failed union certification campaigns.

Unions' primary jurisdictions are used to create a dummy variable indicating whether a union operated primarily in construction. We based primary jurisdiction assignments on information regarding industrial distributions of members (U.S. Bureau of Labor Statistics, 1980: Appendix I) and similar information based on large samples of bargaining agreements (Hendricks, Gramm, & Fiorito, in press). This variable was coded 1 for unions with a primary jurisdiction in construction, 0 otherwise.

Centralization of decision making was measured by a three-item index constructed from the National Union Survey. These items assessed the degree to which a union limited staff and rank-and-file member participation in policy decisions (α = .69). Like the scope of strategies measure, this measure is based on 1990 data, but it represents a relatively stable organizational characteristic that probably reflects circumstances at the time decisions to establish associate membership programs were made.

Participation in the AFL-CIO's Committee on the Evolution of Work was determined from the committee's 1985 report (1 = participation, 0 = otherwise).

Table 1 provides descriptive statistics and correlations for all measures. These data represent 60 national unions for which data were available for the measures of interest that operate primarily under National Labor Relations Board jurisdiction, which excludes private sector unions operating mainly in rail and air transportation.

TABLE 1
Means, Standard Deviations, and Correlations[a]

Variables	Means	s.d.	1	2	3	4	5	6	7	8
1. Associate membership program	0.27	0.44								
2. Membership change	−9.00	14.59	−.01							
3. Scope of strategies	2.44	0.57	.43**	.01						
4. Logarithm of membership	4.44	1.49	.41**	.10	.51**					
5. Knowledge worker organizing	0.12	0.15	.07	.30*	−.21	.09				
6. Lost prospects	7.44	2.00	.40**	.11	.38**	.78**	.01			
7. Construction jurisdiction	0.18	0.39	−.19	−.01	.06	.20	−.21	−.06		
8. Centralization of decision making	2.71	0.73	−.07	.02	−.03	.19	.07	.21	.16	
9. AFL-CIO committee participation	0.22	0.42	.42**	.07	.29*	.50**	−.08	.38**	.17	.08

[a] $N = 60$.
† $p < .10$ or better, two-tailed test.
* $p < .05$ or better, two-tailed test.
** $p < .01$ or better, two-tailed test.

CORRELATION AND LOGISTIC REGRESSION RESULTS

The correlation matrix (Table 1) provides preliminary support for several hypotheses. Table 1 also indicates a potential multicollinearity problem involving the measures of union size and number of union supporters in failed election campaigns. Thus, we examined logistic regression equations that included both measures and that alternately omitted one or the other to assess the results' sensitivity to this aspect of the data.

Table 2 shows logistic regression analysis results. Values for four measures have the expected signs and are significant in all three models. The strong positive effect for the scope of strategies measure supports our hypothesis that unions that stress strategies beyond collective bargaining will be more likely than others to adopt associate membership programs. The positive impact of membership on the AFL-CIO Committee on the Evolution of Work accords with results from innovation and strategy research that stress the importance of leadership attitudes. Results for the knowledge-worker-organizing variable support the notion that unions organizing outside the blue-collar industrial setting are more inclined to establish such programs. Finally, the negative and significant effect for construction sector jurisdiction provides support for the notion that construction unions are less likely than others to establish associate memberships.

The membership change variable exhibits the expected sign and is marginally significant in the first two models. This result mildly supports our prediction that unions with the least favorable membership trends are the most inclined to experiment with associate programs.

TABLE 2
Results of Logistic Regression Analysis

	Model 1		Model 2		Model 3	
Independent Variables	*b*	s.e.	*b*	s.e.	*b*	s.e.
Intercept	−12.02**	4.66	−12.48**	4.51	−9.82**	3.73
Membership change	−0.05†	0.03	−0.05†	0.03	−0.03	0.03
Scope of strategies	2.65*	1.19	2.80**	1.12	2.34*	1.09
Logarthim of membership	0.21	0.65			0.73*	0.44
Knowledge worker organizing	6.87*	3.72	7.39*	3.42	4.99†	3.03
Lost prospects	0.45	0.44	0.55*	0.30		
Construction jurisdiction	−1.83†	1.35	−1.68†	1.28	−2.26*	1.27
Centralization of decision making	−0.77	0.72	−0.73	0.69	−0.70	0.71
AFL-CIO committee participation	2.25*	1.17	2.39*	1.10	1.88*	1.03
Pseudo-R^2	.34		.34		.33	
Model χ^2	31.04**		30.94**		29.90**	
N	60		60		60	

† $p < .10$ or better, one-tailed test.
* $p < .05$ or better, one-tailed test.
** $p < .01$ or better, one-tailed test.

Union size evidences a strong positive effect in model 3. Consistent with our prediction, it appears that large unions are more capable of absorbing the risks posed by associate forms and are better able to muster the resources critical for designing and operating these programs. Similarly, the positive and significant coefficient on the lost prospects variable in model 2 suggests that establishment of such programs is influenced by the number of supporters a union had in failed election campaigns. However, the large correlation between organization size and lost prospects makes it difficult to "partial out" these two effects. Both coefficients are insignificant in model 1, yet a joint test for the effects of both variables in model 1 indicates rejection of the null hypothesis that neither has an impact ($p < .10$).

Centralization of decision making fails to achieve conventional levels of significance in all three models. Thus, we find no support for the hypothesis that unions with high centralization of decision making are more likely to establish associate programs.

DISCUSSION

In sum, our results are consistent with the view that large membership declines in the mid-1980s motivated private sector unions that could muster the necessary resources to establish associate membership programs, especially where such programs furthered salient nonbargaining goals. The incidence of associate membership programs also appears to be linked to participation in the AFL-CIO Committee on the Evolution of Work. Hypotheses relating to relative worker demand for associate membership programs and concerns over undercutting traditional membership also received support. Findings did not support the hypothesized positive impact of centralization on program establishment. These results, along with additional information, suggest the following conclusions.

First, the fact that certain environmental and union characteristics influence the establishment of associate membership programs suggests that these programs are rational attempts on the part of union leaders to cope with environmental changes. Unlike Heckscher, we are hesitant to draw close parallels between the rise of industrial unionism in the 1930s and 1940s and associational unionism in the 1980s and 1990s. The dramatic breakthroughs of the former era are as yet lacking. But in spirit, at least, there are parallels insofar as new organizational forms are developed to cope with environmental change.

Second, the national union officials we interviewed gave both tactical and strategic reasons for adopting associate membership programs. Although strategic objectives were less commonly mentioned, some officials clearly envisioned having union members with long-term, if not permanent, associate membership status. The rather strong impact of the scope of strategies variable is consistent with the view that unions that have implemented such programs are less dependent than other unions on collective bargaining as a method for achieving their goals. Unions stressing political and self-help

strategies may find associate members a tolerable substitute for traditional members, and they may be more willing to view such members as a permanent class.

Respondents frequently mentioned tactical use of associate programs, or using them as a temporary device in the organization of traditional members. We cannot but help notice the parallel with views expressed by the AFL of the 1930s on "federal locals" as temporary devices for organizing industrial workers who would ultimately be allocated to appropriate craft unions. Private sector associate membership programs are still in their infancy, and experience with such programs will lead to reformulations. As in the 1930s, worker preferences and organizing success could transform tactical associate membership program models into strategic ones.

Finally, although unions are a special type of organization, theories of diversification and innovation provide a useful framework for analyzing decisions to establish associate membership programs. In general, our results for unions conform to predictions and evidence based on these theories. Thus, these theories may be more broadly applicable to varying organizational types than is generally acknowledged.

Implications for centralization's effect are less clear, in part because of a conflict between the innovation and diversification literatures. Whereas most evidence has indicated that centralization retards innovation, our results fail to support that view. Our results may simply reflect the low power of a small study group ($N = 60$) and measures with limited reliability. Further, given that our 60 cases represent a substantial portion—about half—of the national union population, the usual sanctity of conventional statistical significance levels is of arguable value. Thus, it may be best to conclude that our results for centralization more or less accord with those of most innovation studies.

Yet, even ignoring statistical significance, the effect size for centralization is small relative to the effect sizes seen in recent meta-analytic work based on other organizational forms. The correlation between centralization and associate membership program implementation reported in Table 1 is half that for the correlation between centralization and innovation reported by Damanpour (1991: 568). Thus, whether we accept the orthodox statistical interpretation that the null hypothesis of zero effect cannot be rejected or take the point estimate as a population parameter, we are left with the view that the role of centralization in associate membership program establishment is smaller than that reported for innovations in other types of organizations. We can only speculate on the reasons for this result. Consistent with the ambidextrous model, the implementation-facilitating role of centralized decision making for a democratic organization faced with a program initiative opposed by most members may largely cancel out the negative effects centralization appears to have on the initiation of the innovation process. Alternatively, the diversification decision aspects of associate membership programs may introduce influences consistent with our hypothesis

that partially offset the innovation-inhibiting effects attributed to centralization in most research on innovation.

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Jack Fiorito is a professor of management at the College of Business, Florida State University. He received his Ph.D. degree in labor and industrial relations at the University of Illinois. His current research focuses on the study of unions as organizations, the causes and consequences of unionization, and human resource management policies.

Paul Jarley is an assistant professor of management and organizations at the College of Business, University of Iowa. He received his Ph.D. degree in industrial relations at the University of Wisconsin-Madison. His current research focuses on innovations in union structure and strategy, public opinion concerning labor unions, and interest arbitration.

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THE 12-HOUR WORK DAY: A 48-HOUR, EIGHT-DAY WEEK

JON L. PIERCE
University of Minnesota at Duluth
RANDALL B. DUNHAM
University of Wisconsin–Madison

This investigation examined police officers' responses to a change from a forward rotating 8-hour-shift schedule to a 12-hour compressed shift schedule. As predicted, significant improvements were observed in the areas of schedule-related interference with personal activities, work-schedule attitudes, general affect, and stress and fatigue. In addition, organizational effectiveness improved, but general work attitudes remained unchanged.

Through the past several decades, there has been a slow and often unheralded increase in the number of organizations experimenting with and adopting new working hour arrangements. Projections are that, as the 21st century approaches, flexible and alternative working hour systems will become increasingly common (Johnston & Packer, 1987).

Interest in flexible working hours, part-time employment options, and compressed or shortened workweek schedules has been driven, in part, by the belief that a schedule that is attractive to employees will motivate effective organizational behavior and promote job satisfaction. The driving force behind the use of shift-work schedules has generally not been a desire to accommodate employees' needs and preferences, but a need to obtain more hours of productivity per day from physical resources or to provide 24-hour service.

This investigation examined the implementation of a hybrid alternative-shift, compressed-workweek schedule. The change in schedule was an outgrowth of a police department's search for a way to solve an administrative problem. Summertime generally places a high level of demand on the department. During the previous summer, the department had allowed too many officers to schedule vacation time, thereby, finding itself with inadequate coverage. Two forces within the department were on a collision course. Department administration had decided to reduce the amount of

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vacation time to be allocated during the upcoming summer months, while there was an increase in the level of demand for time-off requested by the police officers for the upcoming summer. The solution to this problem was found in a reconceptualization of the workweek. The department and the police officers' union saw that if they defined the week in terms of eight days and adopted a 12-hour day, four-days-on, four-days-off, compressed workweek schedule, each employee could have half of every "week" off from work, and therefore half of the summer. At the same time, the department could maintain (if its managers so desired) a full complement of police officers during the summer. Thus, the focus of this investigation was the individual and organizational effects associated with joining a shift-work schedule and a compressed workweek as a way of simultaneously accommodating an organization's need to provide 24-hour service and its employees' need for a friendlier working hour arrangement.

RESEARCH QUESTIONS

Although a well-grounded theoretical paradigm explicating the effects of hybrid work schedules has not been developed, each of the research questions guiding this investigation contained a directional prediction based on previous research (cf. Pierce, Newstrom, Dunham, & Barber, 1989).

Work-Schedule Interference with Personal Activities

In general, shift work appears to reduce the frequency and quality of workers' contacts with family and friends (Hodge & Tellier, 1975). Shift workers also appear to spend more time in solitary activities than do workers with other types of schedules. The families of shift workers experience more frequent family disturbances than other families (Staines & Pleck, 1984) and disruption from community rhythms (Dunham, 1977).

On the other hand, employees often see compressed schedules in a positive light because they provide large blocks of time away from work (Hodge & Tellier, 1975). As a consequence, compressed schedules should provide employees with expanded opportunities to harmonize with family and community rhythms. Thus, we predicted that work-schedule-related interference with such personal activities as interactions with family and friends would decrease following a change to a four-days-on, four-days-off, compressed shift-work schedule.

Work-Schedule Attitudes

Studies of specific attitudes expressed toward shift work are scarce. It is not uncommon, however, to observe that workers dislike the effects that shift-work schedules have upon their family and social lives, the way they affect sleeping and eating routines, and simply the idea of having to work at night (e.g., Akerstedt & Torsvall, 1978).

Pierce and Newstrom (1980) theorized that the more a particular schedule matched an individual's work-schedule preferences and nonwork de-

mands, the more positive would be the employee's attitudes. Relatively little research, however, has been done to document the impact that variations in schedules have on employee attitudes about the schedules themselves, such as their satisfaction with the schedules. According to previous research, however, employees often favor nontraditional work schedules, and most prefer to stay with such an alternative rather than return to a traditional schedule (cf. Ahmadi, Raiszedeh, & Wells, 1986).

Given these observations, we expected that the favorable attitudes commonly associated with compressed schedules might spill over and compensate for the negative attitudes commonly associated with shift-work schedules when a hybrid compressed shift-work schedule was implemented. Thus, we predicted that work-schedule attitudes would improve following a change to a four-days-on, four-days-off, compressed shift-work schedule.

General Affect

Employing the theory of work adjustment (Dawis, England, & Lofquist, 1968), Pierce and Newstrom (1980) hypothesized that to the extent that a particular work schedule is instrumental in meeting the needs of employees, their affective responses to their work environments will improve. Mahoney, Newman, and Frost (1975) suggested that, if individuals can adopt a days-per-week leisure time orientation—define and experience their leisure time in terms of the number of days they are away from work weekly rather than the number of hours they are away from work daily—a compressed work-week schedule can increase their leisure time satisfaction. Job satisfaction can also improve, especially if job dissatisfaction in part stems from the hours of work, as might be the case for shift workers.

According to Dunham, Pierce, and Castaneda (1987), various compressed work schedules have been associated with a full range of effects on worker satisfaction, with the general effect on job satisfaction a positive one. Hodge and Tellier (1975) and Hartman and Weaver (1977), among others, observed positive effects resulting from compressed workweek schedules. Although Dunham and colleagues observed no significant effect for general satisfaction, they did observe a significant effect for leisure time satisfaction following the introduction of a 4/40 (i.e., a four-day, 40-hour) workweek schedule.

Evidence suggests that employees tend to be more job dissatisfied under rotating shift work than are those who work fixed schedules. This job dissatisfaction is commonly attributed to employees' dissatisfaction with their hours of work (cf. Akerstedt & Torsvall, 1978). Thus, we propose that general affect, including job and leisure time satisfaction, will improve following a change to a four-days-on, four-days-off, compressed shift-work schedule.

Stress and Fatigue

Several studies have focused on shift work's consequences for physical health. Orth-Gomer, Perski, and Theorell (1983) suggested that shift work is

likely to be of significance in the development of cardiovascular disorders. Researchers have also noted sleep problems (Akerstedt, 1988) and disruptions of appetite and digestive processes (cf. Smith & Colligan, 1982) as common shift-work consequences.

Stress and fatigue have also been of concern, though not universally, in organizational studies of compressed workweek schedules. Several investigators of compressed schedules have reported increased fatigue levels among respondents. In Goodale and Aagaard's (1975) study, for example, 62 percent of the respondents indicated that they found work more tiring under a 4/40 schedule. Some studies, however, have observed a significant decline in reported stress following the introduction of compressed schedules (cf. Ivancevich, 1974). Finally, in Latack and Foster's (1985) investigation, where subjects worked a 3/38 schedule, with four consecutive days off, fatigue did not appear to be a problem. The results of their work suggest that, as the number of consecutive days worked decreases and/or as the number of consecutive days available to rest increases, the onset of stress and fatigue is arrested. Thus, we propose that stress and fatigue will decline following a change to a four-days-on, four-days-off, compressed shift-work schedule.

Organizational Effectiveness

Studies focusing on the impact of alternative work schedules on employee performance have produced mixed results. Shift-work studies have generally revealed night work and rotating shifts to have negative effects (e.g., Folkard & Monk, 1979). Slow reaction time and low performance accuracy are commonly associated with incompatibility between the hours worked and an employee's circadian rhythms (Akerstedt, Torsvall, & Gillberg, 1982).

Research on the impact of compressed workweeks on employee performance has also produced inconsistent results. Hartman and Weaver (1977) reported productivity increases, but Goodale and Aagaard (1975) found no significant productivity changes. Thus, we propose that there will be no major change in organizational effectiveness following a change to a four-days-on, four-days-off, compressed shift-work schedule.

General Work-Related Attitudes

Research focused on general work-related attitudes has produced inconsistent and often confusing results. Granrose and Appelbaum (1986), for example, reported that internal motivation increased significantly following the introduction of a 4/40 schedule. Following the removal of the schedule, motivation reverted to pre-4/40 levels. Dunham and colleagues (1987), on the other hand, observed no significant change in job involvement, organizational commitment, or internal work motivation as they observed a group of health department employees go from a 5/40 to a 4/40 schedule and then back to the 5/40 schedule four months later. On the basis of such inconsistent observations, those authors argued that the impact of a work schedule on general worker reactions like involvement, commitment, and motivation

"should actually be quite minor since specific reactions to work schedules are only a small portion of the many factors influencing these reactions" (Dunham et al., 1987: 237). Thus, we predicted that general work-related attitudes, including organizational commitment, job involvement, and intrinsic work motivation, would be unchanged following a change to a four-days-on, four-days-off, compressed shift-work schedule.

METHODS

Respondents and Study Design

Data were collected from members of a police department located in a midwestern community of approximately 100,000. At the outset of this investigation, the department's uniformed personnel were working a forward-rotating, eight-hour-day shift-work schedule in which employees worked two nine-day weeks of seven days on and two days off and one ten-day week of seven days on and three days off before beginning the cycle over again.

A questionnaire was administered to officers on incoming and outgoing shifts (time 1). We told potential respondents that participation was voluntary and promised confidentiality of their responses. We also gave each respondent a randomly ordered, numbered identification card; during both data collection processes the respondents were asked to place their identification numbers on their questionnaire, thereby permitting the matching of time 1 and time 2 respondents. Seventy-four officers (93 percent) participated in the survey. Within two weeks of the first data collection period, all the department's uniformed personnel were placed on a two-week forward-rotating 12-hour-day, 48-hour, eight-day-week work schedule that gave them four days on and four days off.

Approximately one year after the new schedule was implemented, we made a second data collection effort (time 2). At this time, 67 (90 percent) of the officers participated. Within-department transfers, terminations, new hirings, retirements, no-shows, lost survey participant identification cards, and missing data reduced the number of time 1–time 2 matches for within-subject comparisons to 50.[1]

Because of the need for confidentiality, we did not collect individual demographic data. Population data provided by the department for its uniformed personnel indicated that the mean age of those participating in the study was approximately 41 at time 1 and that organizational tenure was evenly spread over three groups: one-third of the officers had 10 or fewer years of service; one-third had 11 to 20 years; and one-third, more than 20 years. In addition, most of the officers studied were men, and all were members of the police union.

[1] Although only 50 individuals could be matched, with the exception of 2 of the 24 criterion variables (stress and fatigue), there were no significant differences in work-schedule-change effects when we compared those participating in both data collections to those who participated in only the second survey administration.

Measures

Scales developed and validated in previous work (Dunham & Pierce, 1986) were used to measure work-schedule interference with personal activities and specific work-schedule attitudes. We measured hours of work, life, leisure time, organizational, and job satisfaction using the Dunham and Herman (1975) faces scales. We measured amount of work satisfaction with a two-item Likert-scaled version of Smith's (1976) Index of Organizational Reactions.

Stress and fatigue were assessed with four different scales: physiological and psychological symptoms of stress (Patchen, 1970), fatigue (Dunham et al., 1987), and stress (Gardner & Warrick, 1984). The three general work-related attitudes measured were organizational commitment (Porter, Steers, Mowday, & Boulian, 1974), job involvement (Lodahl & Kejner, 1965), and intrinsic motivation (Lawler & Hall, 1970).

Organizational effectiveness was measured with three self-report scales. We employed the Police Foundation's (1990) instrument to assess 14 performance-related activities, such as handling of noncriminal street activity, prevention of crime, and rapid response to calls for service. Work-schedule scales from previous research (Dunham & Pierce, 1986) were used to measure the impact of the current work schedule on the delivery of service to the community and on work coordination.

Analyses

Multivariate analysis of variance (MANOVA) with a within-subjects repeated measures design was employed to compare employees' responses to the two different work schedules. For those sets of variables for which we identified a significant F through a MANOVA, we inspected univariate Fs to identify variables related to significant schedule change effects.

RESULTS

Table 1 gives a full correlation matrix depicting the strength of the associations between all variables measured at time 1 and between all variables measured at times 1 and 2. Table 2 presents descriptive statistics and reliability estimates for all measures along with results of the tests of the effects of work-schedule changes. We eliminated results on one work-schedule attitude, schedule uniqueness, from subsequent analyses because reliability estimates for times 1 and 2 were low ($\alpha s = .52$ and $.53$).

As Table 2 reports, following the introduction of the 12-hour day, work-schedule interference with personal activities changed significantly ($F = 45.89$, $p < .01$). Significant decreases in schedule interference occurred for all three of the interference dimensions.

A significant change ($F = 77.91$, $p < .01$) occurred for the overall set of work-schedule attitudes following the move from the 8- to the 12-hour day. Significant increases for each of the three work-schedule attitudes were observed.

TABLE 1
Correlations[a]

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Work-schedule interference																						
1. Family and friends	−.16	−.07	−.19	.13	.06	−.01	.05	−.31*	.04	.14	.34*	−.02	−.18	.06	−.00	.03	−.21	.32*	.05	.15	−.04	.10
2. Services, events	.28*	−.11	−.16	−.03	.01	.06	−.00	−.33*	−.04	.07	.24*	−.24	.04	.20	.05	.21	−.23	.11	−.08	.04	−.01	.25
3. Financial	.29*	.65**	−.17	.00	−.07	.06	.07	−.28*	−.08	.09	.17	−.02	.06	.16	.03	.16	−.19	.15	−.02	.04	−.06	.06
Work-schedule attitudes																						
4. General affect	−.55**	−.15	−.20	−.01	.02	.07	−.14	.31*	.18	−.01	−.20	.12	.16	−.29*	−.21	−.11	.15	−.18	.07	.17	−.10	−.02
5. Family and social life	−.67**	−.26	−.13	.66**	−.13	−.06	.03	.21	−.00	−.07	−.16	.01	.09	−.20	−.14	−.09	.06	−.18	.13	−.11	−.24	−.09
6. Uniqueness	.27*	.08	.17	−.30*	−.30*	.29*	−.04	−.13	.17	.01	.21	.06	−.22	−.05	−.16	−.07	−.14	.07	−.08	.18	−.05	.01
7. Work hours satisfaction	−.23	−.26*	−.02	.47**	.34**	−.20	−.28*	.34*	−.06	−.04	−.12	−.14	.22	−.08	.11	−.07	.28*	−.38**	−.31*	.01	.12	.06
General affect																						
8. Life satisfaction	−.13	−.03	.00	.19	.13	−.36**	.14	.53**	.25*	.16	.10	−.13	−.18	−.41**	−.19	−.48**	.11	−.21	−.09	.10	−.28*	−.03
9. Job satisfaction	−.20	−.16	−.13	.38**	.22	−.17	.54**	.45**	.51**	.52**	.01	.06	−.24	−.48**	−.37**	−.45**	.32*	.04	.21	.33*	.03	.07
10. Organizational satisfaction	−.12	−.18	−.18	.31*	.08	−.13	.51**	.41**	.76**	.62**	.11	.02	−.40**	−.49**	−.34*	−.51**	.10	.05	.28*	.47**	−.03	.07
11. Leisure time satisfaction	−.30*	−.11	−.05	.34*	.42**	−.31*	.24	.25*	.28*	.19	−.04	−.04	.06	−.20	.02	−.12	.10	−.30*	−.29*	−.10	−.47**	−.16
12. Amount of work satisfaction	−.19	−.22	−.08	.20	.01	−.14	.22	.23	.32*	.40**	−.08	.63**	−.02	−.22	−.32*	−.28*	.25*	.13	.14	.18	−.24	−.21

TABLE 1 (continued)

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Stress and fatigue																						
13. Physiological symptoms of stress	.56**	.18	.27*	−.56**	−.58**	.48**	−.26*	−.35**	−.40**	−.29*	−.53**	.00	.26*	.38**	.21	.32*	−.20	.20	−.09	−.06	.28*	.06
14. Psychological symptoms of stress	.12	.11	.13	−.42**	−.33*	.30*	−.23	−.55**	−.54**	−.51**	−.30*	−.16	.52**	.56**	.39**	.58**	−.24	.07	−.17	−.54**	.23	−.03
15. Overall fatigue	.38**	.23	.30*	−.51**	−.24	.25*	−.24	−.49**	−.63**	−.47**	−.37**	−.37**	.52**	.57**	.27*	.29*	−.26*	−.05	−.10	−.10	.21	.04
16. Overall stress	.10	.09	.13	−.36**	−.19	.31*	−.34**	−.72**	−.70**	−.64**	−.39**	−.28*	.56**	.76**	.86**	.75**	−.23	−.14	−.06	−.43**	.23	−.15
Organizational effectiveness																						
17. Performance	.20	.01	.15	−.18	−.23	.15	.16	.19	.40**	.43**	−.10	.40**	.24	−.13	−.11	−.20	.79**	−.05	−.00	.31*	.24	.07
18. Work coordination	−.45**	−.31*	−.41**	.50**	.32*	−.47**	.30*	.13	.33*	.26*	.43**	.31*	−.38**	−.20	−.47**	−.26*	−.06	−.01	−.05	−.04	−.08	.03
19. Service	−.47**	.25	−.29*	.54**	.25*	−.34**	.43**	.24	.37**	.25*	.21	.21	−.48**	−.31*	−.52**	−.25*	−.05	.45**	.07	.11	−.10	.05
General attitudes																						
20. Organizational commitment	−.16	−.11	−.14	.35**	.07	−.17	.16	.44**	.65**	.66**	.19	.23	−.32*	−.56**	−.60**	−.63**	.34*	.19	.22	.79**	.12	.31*
21. Intrinsic motivation	.09	.03	.10	−.06	−.18	.07	−.19	−.02	−.10	.03	−.06	.01	.22	.19	.17	.21	.08	−.03	−.09	.05	.48**	.41**
22. Job involvement	.16	.09	.03	.09	−.06	.00	.02	−.07	.24	.17	.06	−.17	.06	−.17	−.15	−.11	.06	−.07	−.04	.42**	.12	.72**

[a] Lower diagonal portion reflects time 1–time 1 correlations; upper portion reflects time 1–time 2 correlations.

Results reveal a significant change ($F = 9.15$, $p < .01$) in general affect following the change in work schedule. Overall job, leisure time, and life satisfaction, three of the five variables in this set, significantly improved, with no effects for satisfaction with organizational association and amount of work.

Inspection of the data reveals a significant change in the overall level of stress and fatigue ($F = 14.48$, $p < .01$). Ratings on each of the four measures of stress and fatigue significantly decreased following the work-schedule change.

Table 2 reveals a significant change in the set of measures of organizational effectiveness ($F = 34.96$, $p < .01$). Although the department's performance of its specific patrol functions did not change, significant improvements occurred in work coordination and the servicing of external constituents' needs.

No significant change ($F = .33$, $p < .77$) in employees' general attitudes—organizational commitment, job involvement, and intrinsic motivation—accompanied the change in schedule.

DISCUSSION

Much of the literature on compressed work schedules has noted positive effects for employees. The literature on shift-work schedules typically identifies negative effects. Our findings suggest that combining a compressed and a shift schedule may mitigate some of the negative effects frequently associated with shift work and capitalize on some of the positive effects associated with compression.

Specifically, our results revealed that a four-days-on, four-days-off pattern may allow shift workers to better harmonize their nonwork activities with family and community rhythms, thereby overcoming many of the negative effects commonly associated with shift-work schedules. Accompanying the significant increase in satisfaction with the hours of work that occurred with the adoption of the hybrid schedule was an improvement in job, life, and leisure time satisfaction.

Although this investigation did not examine direct health effects—an area for future inquiry—self-reports of a decrease in stress and fatigue accompanying the adoption of the changed schedule are encouraging. The increase in the number of consecutive days shift workers had away from work to "recharge their batteries" may be a feature that more managers should consider building into their shift-work schedules.

Finally, the results of our investigation, combined with those of previous research on compressed workweeks, does not lead us to recommend the implementation of this hybrid schedule on the basis of a likely direct and positive impact upon organizational performance. But the good news is that no decline in organizational effectiveness accompanied the move from an 8-hour day to a 12-hour day. Coupled with the observations commented

TABLE 2
Effects of Work-Schedule Change

Variables	Wilks's F^a	Time 1 Means	Time 1 s.d.	Time 1 α	Time 2 Means	Time 2 s.d.	Time 2 α	N	F	p
Work-schedule interference	45.89									
Family and friends[b]		4.10	0.55	.90	2.46	0.75	.96	43	131.92	.000
Services, events[b]		3.35	0.47	.79	2.37	0.67	.94	43	54.41	.000
Financial[b]		3.05	0.79	.95	2.21	0.81	.99	43	20.33	.000
Work-schedule attitudes	77.91									
General affect[b]		2.01	0.69	.82	3.99	0.75	.91	50	200.54	.000
Family and social life[b]		1.58	0.71	.75	3.87	0.89	.90	50	185.96	.000
Work hours satisfaction[d]		2.40	1.43	n.a.	5.90	1.31	n.a.	50	134.89	.000
General affect	9.15									
Satisfaction										
Life[d]		4.78	1.43	n.a.	5.44	1.07	n.a.	50	13.82	.001
Job[d]		4.10	1.64	n.a.	4.74	1.44	n.a.	50	9.00	.004
Organizational[d]		4.10	1.43	n.a.	4.44	1.42	n.a.	50	3.67	.061
Leisure time[d]		4.08	1.75	n.a.	6.00	0.97	n.a.	50	43.91	.000
Amount of work[b]		3.04	0.96	.82	3.22	0.88	.86	50	2.49	.121
Stress and fatigue	14.48									
Physiological stress symptoms[b]		2.93	0.71	.71	2.11	0.58	.76	48	50.26	.000
Psychological stress symptoms[b]		3.45	0.95	.75	2.95	0.72	.51	48	17.38	.000
Fatigue[b]		3.50	0.82	.71	2.76	0.76	.76	48	29.38	.000
Stress[b]		2.37	0.64	.93	2.01	0.54	.92	48	32.95	.000
Organizational effectiveness	34.96									
Performance[c]		4.05	0.83	.92	4.02	0.94	.94	48	0.14	.711
Work coordination[b]		2.75	0.68	.58	4.04	0.68	.81	48	97.98	.000
Service[b]		2.59	0.76	.85	3.73	0.74	.92	48	64.52	.000
General attitudes	0.38									
Organizational commitment[d]		3.42	1.31	.88	3.52	1.31	.88	49	0.62	.435
Intrinsic work motivation[d]		5.45	0.80	.64	5.42	0.84	.71	49	0.07	.799
Job involvement[b]		2.33	0.70	.76	2.29	0.62	.76	49	0.25	.619

[a] $p < .01$ for all statistics in this column, except for general attitudes, where $p < .77$.
[b] Measured with a 5-point response scale.
[c] Measured with a 6-point response scale.
[d] Measured with a 7-point response scale; n.a. = not applicable.

upon above, this finding leads us to strongly encourage organizations to experiment with coupling compressed and shift-work schedules.

The absence of a control group is a limitation of this study. Unfortunately, few community police forces have more than one police department, and the use of second community's police force would have raised concerns about organizational and community differences, calling into question its validity. Dividing this community's police force into two groups would have been impractical, given its small size and centralized administration and headquarters and the political issues that would have accompanied such an action.

Careful observation of this police force and the community identified no significant community or organizational changes that were likely to have systematically influenced the dependent variables of this study, particularly those dealing with specific work-schedule–related attitudes. Furthermore, several other work attitudes, such as organizational association satisfaction, organizational commitment, and intrinsic motivation, did not change during the course of the study; such changes would have been likely had other events unrelated to the focal results of this study occurred.

Alternatively, officers, knowing that they were going to experience a work-schedule change, may have anticipated the effects of the schedule when giving their responses at time 1. Given that some employee reactions changed significantly following the change in schedule and others did not, we reject the notion that anticipation produced a general and systematic bias.

From a measurement perspective, this study is also limited by the low levels of internal consistency reliability found for psychological stress symptoms (.51 at time 2) and work coordination effects (.58 at time 1). The fact that we observed significant results with both scales suggests that they were not too unreliable for substantive research purposes. It should also be noted that the research questions that guided this investigation did not revolve around these two variables. Instead, each variable with low reliability was one of a set of variables that were measured to test for significant work-schedule-change effects.

The police officers studied may have been working a relatively unique schedule, raising questions as to the generalizability of the results to a more traditional five-days-on, two-days-off shift-work schedule. Future research could compare this group of officers on the hybrid schedule with other groups that work around the clock, such as nurses and public safety communications workers. Finally, future research should examine whether there are differences in reactions to a hybrid schedule that are based upon marital and family status; for example, individuals with children at home may have a stronger need for time away from work daily rather than weekly.

Although research focused on alternative work schedules, such as flexible working hours and compressed workweeks, has spanned the past two decades, the work to date remains largely exploratory. The critical dimensions of alternative work schedules, their relationship with employee responses, and the process through which they produce their effects have not been conceptually articulated. We encourage those interested in work-schedule effects to develop a theoretical model that could be used to drive future inquiry. Existing research suggests two issues that such a theoretical model should address. First, the degree to which alternative work schedules succeed by better addressing the needs of organizational members should be considered. Secondly, researchers should consider the degree to which alternative schedules remove barriers, such as those associated with interference with personal activities.

Approximately one-fourth of the American work force is involved in shift-work schedules. Existing research suggests that such schedules create problems for many people. Our findings suggest that when it is not practical for an organization to restrict its hours of operation, it can still minimize some of the negative effects of shift work. Capitalizing on the benefits of compressed work schedules may be part of the answer.

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Jon L. Pierce is a professor of organization and management at the University of Minnesota at Duluth. He received his Ph.D. degree from the University of Wisconsin–Madison. Currently his research is focused on the social-psychological effects of employee ownership, alternative work schedules, the antecedents and consequences of organization-based self-esteem, and psychological ownership.

Randall B. Dunham earned his Ph.D. degree at the University of Illinois. He is a professor of management at the University of Wisconsin–Madison and the associate dean of academic affairs for its school of business. His current research interests include employee attitudes toward change, locus of control in the workplace, organization-based self-esteem, work schedules, organizational commitment, and flexible benefits.

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UNEXPECTED CONSEQUENCES OF IMPROVING WORKPLACE JUSTICE: A SIX-YEAR TIME SERIES ASSESSMENT

DEBRA J. MESCH
DAN R. DALTON
Indiana University

Reported here are the effects of a naturally occurring field experiment in which an intervention to improve a grievance process was introduced and then removed. The experimental design was an interrupted time series with treatment removal and a no-treatment, nonequivalent control group. Its results—more compromise resolutions and a dramatic increase in the number of grievances filed—may be instructive for those who might consider changing workplace justice processes.

A recent cooperative effort between the management and union of a western public utility company provided the basis for a naturally occurring field experiment. The cooperative effort the two parties initiated was a fact-finding procedure designed to complement and improve the utility's grievance process. The intervention provided an unusual opportunity for research observation of the dynamics of such a program and selected outcomes because the program was discontinued after 24 months. We obtained grievance data from an experimental group and a matched, nonequivalent control group to study the effects of the intervention and its removal on the rate at which grievances arose, their outcomes, compromises, and the process level at which they were resolved. This article presents an ex post facto report of the consequences of this naturally occurring experiment.

BACKGROUND AND ISSUES

Why the Fact-Finding Intervention?

The intervention studied was designed to address the issue of workplace grievances. The utility's grievance process had five levels: the local, division, company, national, and arbitration levels. Under the intervention, before the local process began, the union and the company assigned representatives for a fact-finding team to investigate newly filed grievances. Each fact-finding team was composed of a union representative, known as the

"factfinder," and a supervisor, neither of whom could be party to the grievance under consideration. This fact-finding program had three objectives. The first was to encourage a more open system of dispute resolution through requiring revelation of a series of stipulated facts. In the past, union or management parties might deliberately conceal material facts in the initial stages of a grievance process, presumably planning to reveal the facts at higher levels of the process. Under the new policy, a fact could be of two types, either stipulated, or agreed upon by both parties, or in dispute, that is, not agreed upon. Importantly, however, neither party could subsequently raise a fact not raised in the fact-finding stage. This policy removed incentives to conceal material issues. We might draw an analogy between this process and discovery in a legal proceeding.

A second objective of the intervention was to encourage the resolution of disputes at lower levels in the grievance process. The new fact-finding program had three aspects that might have facilitated achieving this goal. As noted, the parties to disputes had earlier access to salient information under the new policy. Beyond that, the factfinders had absolute authority to resolve disputes at the fact-finding step. Also, such resolutions did not set precedents for future disputes. This approach minimized both management and union concerns that resolutions at very low levels without policy-level officers present could set precedents that neither party could countenance in the long term.

Lastly, the parties were interested in a procedure that would lead to more timely dispute resolution. There were two obvious advantages to such efficiency. The union would be able to provide more timely feedback to those who had filed grievances. And resolutions at lower levels promised to be far less expensive than those that progressed through several levels.

Some Theoretical Support

Previous research provides some support for the potential efficacy of an intervention of this type. Certainly, concerns regarding dispute resolution procedures are well placed; Gordon called grievance systems "the most visible and prevalent mechanism for guaranteeing workers due process" and noted that "the study of workplace justice might be promoted usefully with greater attention to research on grievance systems" (1987: 391).

Although we are aware of no empirical assessment in the area, it has been suggested that a fact-finding procedure may increase the effectiveness and efficiency of the grievance process, particularly by settling cases early in the process (Kagel, Kelly, & Szymanski, 1984). The fact-finding intervention we studied could certainly have had this effect. First, its stated objective was to expedite the grievance process. As we have noted, the openness of the fact stipulation process, the absolute authority of the factfinder to settle disputes, and the absence of precedent setting all promised a timely resolution of grievances with high-quality information. Moreover, since traditional relationships between union and management are adversarial, particularly in

dispute resolution (e.g., Belcher, 1988; Weinberg, 1983), the cooperative nature of this intervention may in itself be important. As Dalton and Todor suggested, the "notion of joint cooperative efforts between management and labor is notable, if for no other reason, for its contrast" (1984: 262).

Attention to the grievance process is significant for several reasons. Most obviously, the process is time-consuming and expensive (Dalton & Todor, 1981). The preparation of grievances and the informal and formal meetings for resolution are time-consuming for management and union representatives and for involved employees. Beyond that, grievants, witnesses, and other involved employees must be relieved of their normal duties to participate in the grievance process, which not only results in lost-time wages, but also disrupts normal flow of work. Also, high rates of grievance filing have been found to be related to low productivity, high absenteeism, and numerous disciplinary incidents (Ichniowski, 1986; Katz, Kochan, & Gobeille, 1983; Katz, Kochan, & Weber, 1985). It should be noted, however, that grievance processes are not invariably dysfunctional. On the contrary, it has been suggested that grievance systems are the keystone of industrial relations because of their ability to resolve disputed issues while work continues without litigation, strikes, or other radical dispute resolution strategies (Labig & Greer, 1988). Grievance systems do generally serve the interests of both management and organized labor, and both parties have important stakes in their preservation (Barbash, 1984; Gordon & Miller, 1984).

Research Issues

Since this was a post hoc examination, we do not offer formal hypotheses. We do, however, note that changes might have been reasonably expected to emerge from this intervention in the following four areas: the number of grievances filed, grievance outcomes, the number of compromise resolutions, and the level at which resolutions occurred. We should also explain that these expectations, with one exception, are our own and do not necessarily reflect the objectives of the parties who introduced the fact-finding intervention. Neither the union nor the company expressed any a priori expectations regarding the numbers of grievances and compromise resolutions or the types of grievance outcomes. They did, however, anticipate that grievance resolutions would occur at lower levels of the grievance process.

Number of grievances filed. Prior research (e.g., Dalton & Todor, 1984; Schuster, 1984) provides some evidence that a cooperative union-management intervention may reduce the total number of grievances at a workplace. Additionally, the volume of grievances and disciplinary actions is symptomatic of union and management inability to communicate effectively or of their inability to resolve differences informally. Thus, a large number of grievances may signal problems in an organization's conflict management system (Kochan, Katz, & McKersie, 1986).

It has also been argued, however, that cooperative interventions could lead to more grievance activity. Labig and Greer, for example, argued that

any modification in a dispute process that leads to "quick, economical resolution" of grievances could provide "greater incentives to use the grievance process" (1988: 22). Although we found Labig and Greer's argument credible, the available research evidence suggested that a reduction in the number of grievances would have occurred after the fact-finding intervention.

Grievance outcomes. That a cooperative intervention could affect the outcomes of grievances seems reasonable. What is less clear is the likely direction of outcomes. Would the fact-finding intervention result in an improved "winning percentage" for employees who filed grievances? Or would such procedures serve the company? It is not immediately apparent why, for example, availability of facts, or expediency, or the charter of factfinders to adjudicate would necessarily constitute an advantage for one party over the other. We considered that, if the timely resolution of a grievance is an objective, early access to high-quality information about a given incident is in the interests of both parties. We did not suppose that, under the prior system, one party would have been more likely to conceal material information than the other, thus perhaps gaining some advantage. Accordingly, we expected that fact-finding information would have favored the union in some cases, management in others; in the balance, we expected no systematic advantage for either party and no overall difference in the outcomes attained under the new policy and before and after its implementation.

Compromise resolutions. The resolution of workplace disputes cannot actually be captured in a binary, win or lose, variable. Dispute resolutions often result in compromise. Previous research has suggested that, in the context of a program specifically addressing the resolution of grievances, the parties may be more willing to be flexible and to compromise in order to reach a resolution (Swinehart & Sherr, 1986). We considered the fact-finding intervention to have had this character and expected an increase in the proportion of compromise resolutions to have resulted. As previously noted, a primary objective of the fact-finding intervention was to reduce the adversarial element in dispute resolution and to provide a vehicle whereby the parties could focus on points of agreement, not disagreement. It may be that a less adversarial climate would itself have increased the tendency for the parties to compromise.

Level of resolution. Generally, it is to the advantage of all concerned in a grievance process to settle disputes at the lowest possible level (Gordon & Miller, 1984). Excessive use of the later steps of a grievance process is not only costly, but also an indication that some of the prior steps may be ineffective (Biggs, 1981). Thus, an effective program or intervention should result in the settlement of grievances at earlier stages in a procedure (Schuster, 1984). Furthermore, researchers have suggested that a temperate employee-management relationship should increase the likelihood that grievances will be settled at the first possible level (Gordon & Miller, 1984). Given that the factfinders we studied had the authority to settle grievances, we expected grievances to have generally been resolved at lower levels under the intervention.

METHODS

Research Design

The design of this naturally occurring field experiment was an interrupted time series with multiple time-interval pretest measures, intervention (treatment and removal), and a no-treatment, nonequivalent control group. Campbell (1963) initially proposed the use of time series designs in assessing the impact of a discrete intervention on a social process. An interrupted time series design involves periodic measurement of an outcome variable both before and after an intervention is introduced. If the intervention has had an effect, a discontinuity in the pattern of the data in the time series will occur (Campbell & Stanley, 1963; Cook & Campbell, 1979).

For this study, we obtained data over a six-year period, taking measures monthly for the 36 months prior to the intervention, the 24 months during it, and the 12 months after its removal. The nonequivalent group consisted of employees of another western utility in which no intervention occurred. Designs of this type are in some ways enviable (cf. Campbell & Stanley, 1963; Judd & Kenny, 1981), but they are not ideal inasmuch as the "subjects" are obviously not randomly assigned to the experimental and control groups. Although these groups should be as comparable as possible (e.g., Cook & Campbell, 1979), there is no substitute for random assignment.

For this examination, the two groups did have much in common. The two companies studied operated in the same geographic area, had identical charters, relied on similar technologies, and were regulated by the same public utility commission. Moreover, the same labor union represented the hourly employees of both companies, providing some unusual evidence for the similarity of the experimental and control groups.

Because employees of both companies were in the same geographical region and were represented by the same labor union, the same union local handled grievances filed in their behalf. The officers of the union, its staff, and other support personnel—the people empowered to manage employee grievances from their initiation to their resolution—were the same for both groups. Thus, no differences could have arisen as a function of disparate policies and procedures at the local, regional, or international level of the union.

Despite the many similarities between the experimental and control groups, there are notable differences. Notice, for example, that the levels for the dependent variables for the control and experimental groups are similar, but not identical (see Figures 1–4 for descriptive data). Differences in the control and experimental groups' results for outcomes, compromises, and resolution level were not statistically significant. However, such a test of significance includes relatively few data points ($N = 36$) because we could use only nonintervention periods. More important, the results of this test need to be interpreted carefully because the groups are nonequivalent. The rates at which the experimental and control groups filed grievances were

statistically different. Thus, any analyses that compared an experimental group with a nonequivalent control group had to be cautiously interpreted.

Even without the benefit of the nonequivalent control group, our design would have been robust as it includes a treatment period and a post-treatment period. Cook and Campbell (1979) argued that this aspect of a time series design can, in and of itself, be very powerful. The most convincing inferential logic for causal interpretation would be change in the direction of the time series during the intervention and change in the counter direction in its absence.

Data

The data for this research were all grievances ($N = 4{,}130$) filed over the six-year study period by the employees of the experimental and the control groups. Those employees were a heterogeneous group and included a wide variety of nonmanagers and nonprofessionals. Forty-four percent were men, and 56 percent were women; 66 percent were blue-collar workers and 34 percent, white-collar; the modal range of ages was 35–45 years and the range for seniority was 11–15 years; and, according to their wage classifications, 32.4 percent had high-technology jobs, 34.6 percent had medium-technology jobs, and 33.0 percent had low-technology jobs.

Variables

Dependent variables. Four dependent variables representing the focal grievance process issues were examined. We derived the grievance rate for a given period by dividing the total number of grievances filed by the total number of employees.

Grievance resolution refers to the outcome of a grievance from the grievant's point of view; to win, lose, compromise, withdraw without prejudice, or abandon a complaint are all possible (Dalton & Todor, 1981, 1985). Although there are legal distinctions between these categories, researchers have frequently combined several of them for analysis (e.g., Dalton & Todor, 1985; Dalton, Todor, & Owen, 1987; Terpstra & Baker, 1988). Loss, withdrawal, and abandonment can be combined into a lose category because the grievant's demands have not been met. In the win category are those actions in which the grievant has been sustained. The variable used here was the winning percentage, measured as grievances won divided by total grievances. We also recorded the rate of compromises, dividing grievances with compromise resolutions by total grievances.

Grievance resolution level was coded as the process level to which a grievance had proceeded before resolution. As noted, this utility's grievance procedure had five levels through which a grievance could proceed: the local, divisional, company, national, and arbitrational. As very few grievances typically progressed to arbitration—one or two per year—we relied here on the first four levels only, and since our only interest was in the average number of levels to which grievances proceeded, we used a continuous variable.

ANALYSES

The general class of techniques designed to assess the impact of discrete events upon a time series is known as autoregressive integrated moving average (ARIMA) intervention analysis (Box & Jenkins, 1976). The time series procedure seeks to remove systematic errors such as trend, aberrant oscillation, autocorrelation, and seasonality and then reexamine a series after including the impact of an intervention. In this case, there were two interventions: the introduction of the fact-finding procedure and its removal.

All the ARIMA analyses we report here are based on 72 data points, each representing monthly data collected over a six-year period. This is an uncommonly large number of observations, well beyond the 50-point guideline typically suggested for ARIMA analyses of this type (e.g., McCleary & Hay, 1980). The availability of a large number of preintervention observations allowed us to establish a stable baseline period.

There are four basic stages in an ARIMA analysis. The first stage, identification, includes the examination of the autocorrelation and partial autocorrelation functions of the raw data for the preintervention series. Normally, a time series has unique autocorrelation and partial autocorrelation patterns by which a researcher can determine whether the time series will require certain parameters.

Specifically, once the preliminary models for the time series data have been identified, it can be determined if the series requires differencing, moving average, or autoregressive parameters. At this stage, estimation, the parameters are tested for statistical significance.

The adequacy of the model including the selected parameters is determined in the diagnostic stage. Here, the analyst examines the residuals to determine if they are randomly distributed (a necessary condition) and to ensure that no systematic processes are present that have not been estimated in the existing model. Here, an adequate model is characterized by near-zero autocorrelation functions, and the residual mean should not be statistically different from zero.

The final stage of an ARIMA intervention analysis is the impact assessment. At this point, the researcher adds a transfer function representing the impact of the intervention to the model. Essentially, the question is whether the transfer function provides a better estimation of the model than has already been obtained; the statistical significance of a generated coefficient is the criterion. An intervention is said to be significant if it adds to the predictability of the model above and beyond the prior parameters (differencing, moving average, and autocorrelation).

Assessing the impact of an intervention is thus a comparative process with this method. First, a model is specified without a transfer function. Essentially, we generated a model as if there had been no intervention. After this no-intervention process is modeled as robustly as possible, an alternative model is derived. This second model includes a transfer function. If the second model is statistically superior to the first, the inferential logic is that

the intervention made a difference. For all the research issues, it was necessary to model two events, intervention introduction and intervention removal.

All analyses for this study were conducted using the conditional least-squares 2T subroutine of Bio-Medical Computer Programs (BMDP) (Dixon, Brown, Engelman, Hill, & Jennrich, 1988). The combination of functions that provided the best model for testing for these data was an ARIMA (1,0,0) process, a first-order autoregressive function. For all series in this research, final model specifications were acceptable, characterized by near-zero autocorrelation functions and residual means not significantly different from zero.

RESULTS

The analyses of the grievance rate data indicate that both the introduction of the fact-finding program (intervention 1) and its removal (intervention 2) had highly significant impacts on the time series ($t = 6.41$, $p < .001$, and $t = -2.32$, $p < .05$). The signs of the t-values are of some importance. The results of the two impact assessments indicate that the introduction of fact-finding led to an increase in the grievance rate, and its removal led to a decrease in the grievance rate to baseline levels.

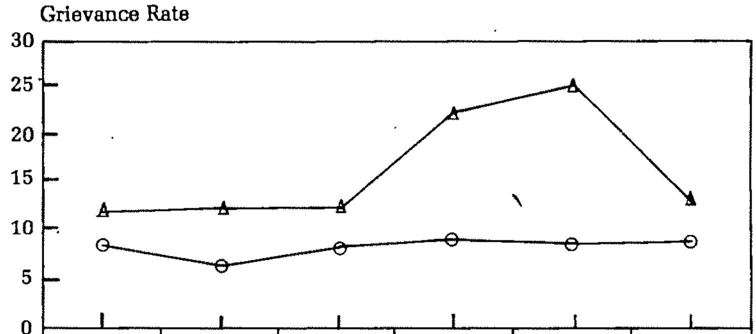
For the control group, the t-values for interventions 1 and 2 were 1.03 and 0.78, respectively, and both were nonsignificant, indicating that neither transfer function was necessary in order to model the time series data for the control group. Although this finding is consistent with Labig and Greer's (1988) proposals, it is the reverse of our speculation on the direction of these results.

These time series results, as well as those of the remaining analyses, are based on monthly data points. For ease of presentation, however, Figure 1 provides a yearly summary of the time series and other descriptive data. Of course, this descriptive illustration is consistent with the ARIMA results. A gross increase in grievance rates over the trial period characterizes the experimental group. After treatment removal, the grievance rate returns to baseline levels. For the control group, neither the intervention nor its removal have a marked impact on the time series.

It was suggested that the fact-finding intervention would constitute no advantage for either party with respect to winning percentage. The analysis is consistent with this view; t-values were insignificant for both intervention events ($t = 0.78$ and $t = -1.60$, respectively). There is, then, no empirical evidence that the introduction of the fact-finding intervention or its removal was associated with any change in grievance outcomes. Additionally, there is no evidence of changes in the control group for the intervention or its removal ($t = 0.72$, $t = 0.95$). Figure 2 describes these data.

We expected that we would find there had been an increase in compromise resolutions as a result of the fact-finding intervention and a decrease in the number of compromise resolutions as a result of its discontinuance. The

FIGURE 1
Grievance Rate

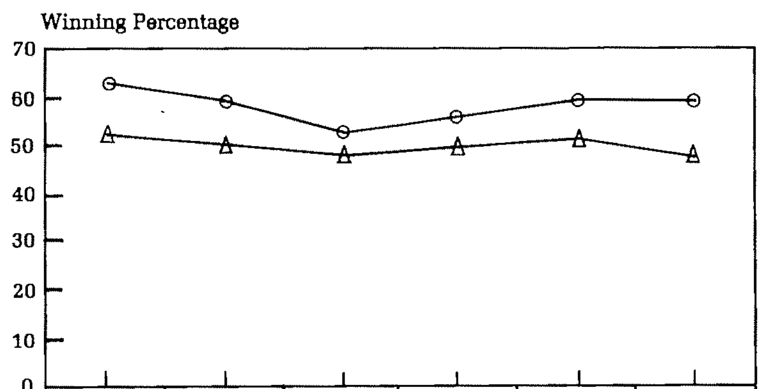


	Year 1	Year 2	Year 3[a]	Year 4	Year 5[b]	Year 6
Experimental group	11.4	11.9	12.1	21.9	24.8	13.1
Control group	7.9	6.4	8.8	9.3	8.7	9.2

—Δ— Experimental group —ө— Control group

[a] The fact-finding intervention was introduced in year 3.
[b] The fact-finding intervention was discontinued in year 5.

FIGURE 2
Grievance Outcomes



	Year 1	Year 2	Year 3[a]	Year 4	Year 5[b]	Year 6
Experimental group	51.5	50.2	48.9	50.5	51.1	47.4
Control group	63.3	59.5	53.2	56.5	60.0	59.7

—Δ— Experimental group —ө— Control group

[a] The fact-finding intervention was introduced in year 3.
[b] The fact-finding intervention was discontinued in year 5.

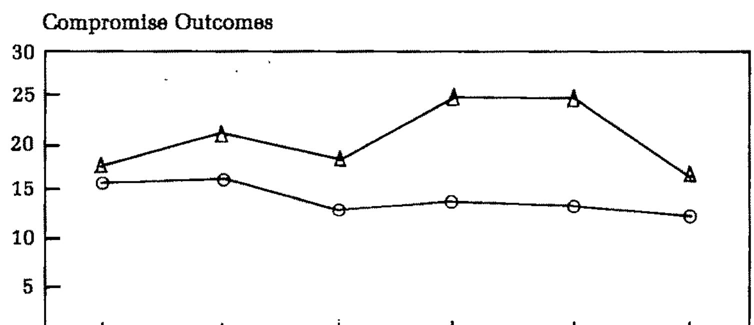
t-values for both intervention 1 and intervention 2 were significant ($t = 2.49$, $p < .02$, and $t = -3.29$, $p < .01$). There was no difference in the rate of compromise resolutions across the time series data for the control group. The t-values for intervention 1 (-0.62) and intervention 2 (-0.75) were both nonsignificant. Figure 3 provides descriptive data of the annualized time series.

We speculated that disputes would be resolved at a lower level in the grievance process as a result of the fact-finding intervention; concomitantly, the level of resolution would increase with the removal of this intervention. The intervention assessment indicated significant t-values for both intervention 1 ($t = -5.90$, $p < .001$) and intervention 2 ($t = 2.73$, $p < .02$). As expected, the t-values for both intervention 1 (1.83) and intervention 2 (1.42) were nonsignificant for the control group. Figure 4 provides descriptive data for these time series. It appears that the fact-finding program is associated with disputes being resolved with fewer steps.

DISCUSSION

This study reports the results of a naturally occurring experiment. We had no role in the planning, execution, evaluation, or—perhaps most notably—discontinuance of the intervention studied here. Although we have no quarrel with the parties' mutual decision to terminate the program, we suggest that the program had positive effects that may have made termination a

FIGURE 3
Compromise Outcomes



	Year 1	Year 2	Year 3[a]	Year 4	Year 5[b]	Year 6
Experimental group	17.2	21.1	18.6	24.8	24.7	16.4
Control group	15.3	16.2	12.8	14.1	13.8	13.0

—▲— Experimental group —⊖— Control group

[a] The fact-finding intervention was introduced in year 3.
[b] The fact-finding intervention was discontinued in year 5.

difficult decision. The intervention did appear to settle grievances at lower levels, increase the number of compromise resolutions, and not affect the winning percentages of the parties; it also may have allowed the process to include grievants who might not otherwise have participated. Given these outcomes, it may be that other observers evaluating the same information would have reached a different conclusion and not discontinued the fact-finding program.

From the onset, it should be remembered that this program was discontinued even though it met the principal objective of the parties, to settle grievances in a more timely manner at lower levels in the grievance process. A review of Figure 4 indicates that the average grievance was settled at the second of four steps. During the intervention years, the average settlement was at 1.28 steps.[1]

Another positive element was the impact of the fact-finding intervention on the proportion of disputes for which a compromise resolution was reached, which increased from about 18.6 to nearly 25 percent. It is possible that the cooperative nature of this intervention predisposed the parties to be more amenable to compromise solutions. Also, the parties' equal access to stipulated information—a primary goal of fact-finding—may have led to more compromise resolutions. Such information may make one party more aware that the position of the other is not unreasonable. Whatever the dynamics, we suggest that this increase in compromise resolutions, particularly given the traditionally adversarial quality of the grievance process, constitutes a post-intervention improvement in procedures.

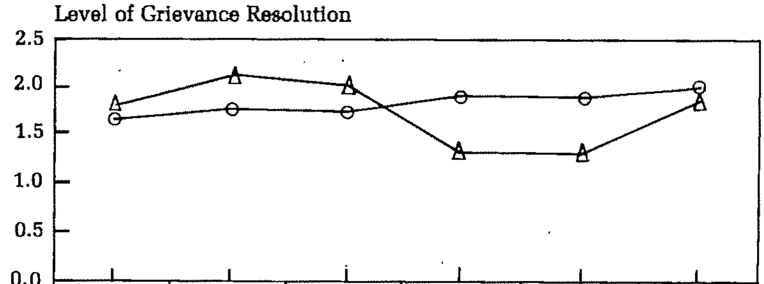
Another result could be positively interpreted as well. We demonstrated no differences in the outcomes of grievances (the proportions of grievances

[1] Another issue should be considered in interpreting this result. We reported that the fact-finding procedure led to a significant decrease in the average level of grievance resolution. In the intervention period, the level fell from 2.01 to 1.28, a net reduction of some .73 levels per grievance. In the preintervention year, of course, there was no fact-finding program. The company's collective bargaining agreement specified the steps of the grievance process, formally defining what constituted each level. Fact-finding was not a formal step in the grievance process. Strictly speaking, then, fact-finding was a step prior to the first official level of the grievance process. The issue, then, is how we account for the addition of the fact-finding step.

One approach is to count fact-finding as a step because it requires resources, like any other grievance step. If this view is adopted, the 1.28 average grievance levels to resolution is an underestimate. A better estimate would be 2.28 levels—the reported 1.28 plus one step for fact-finding. Thus, there was a net increase of .27 in the number of steps to resolution. This difference, however, is not statistically significant. Viewing fact-finding as an additional step, then, results in concluding that there was no difference in the average level of grievance resolution before and after the intervention.

Although there may be some analytical justification for the approach just described, we find it less than compelling from a grievant's point of view. Obviously, many grievances that previously had gone to at least the second formal step of the grievance process were now resolved prior to that, whether or not the fact-finding step is counted. In a grievant's view, fact-finding was the first step. Also, the parties to the fact-finding intervention agreed that the objective of the program was to resolve grievances at a lower level in the process; resolution at the fact-finding stage, whether it is a formal or informal stage, certainly accomplishes this.

FIGURE 4
Grievance Level



	Year 1	Year 2	Year 3[a]	Year 4	Year 5[b]	Year 6
Experimental group	1.76	2.05	2.01	1.28	1.28	1.96
Control group	1.71	1.79	1.76	1.98	1.96	2.01

—A— Experimental group —o— Control group

[a] The fact-finding intervention was introduced in year 3.
[b] The fact-finding intervention was discontinued in year 5.

won and lost) as a function of the fact-finding intervention. In other words, there is no evidence that the intervention provided an advantage to one or the other of the parties. Clearly, any intervention that had the systematic effect of favoring one party in the grievance process would not receive an endorsement from the other party. We would think that this nonadvantage result would be essential if a similar intervention were to be successful in another setting.

There could, however, be a downside to the intervention in the large increase in the number of grievances filed—the number doubled by the second intervention year—but here we admit some ambivalence. One interpretation of this result is that it is consistent with Labig and Greer's (1988) proposition that changes in dispute resolution procedures that lead to the "quick, economical resolution" of grievances could provide greater incentives to use a system. Thus, a fact-finding process that evidently did lead to timely resolutions of disputes at lower levels and did generate more compromise outcomes might be expected to increase the number of grievances.

Such a process could also properly encourage individuals to make legitimate claims that they would not have made under the relatively unfriendly prior system. In fact, it may be that the new system allowed the expression of a number of latent, legitimate grievances. Accordingly, employees might respond quite rationally to a new system that did provide an improved forum for an objective assessment of the facts surrounding an incident in dispute. Assuming that the new system was more credible than

the old, more activity would be the expected result. If the parties were interested in improvement in the dispute resolution procedure, they may have accomplished that goal despite the increase in dispute actions. Another view, of course, would be that whatever its benefits, one cost of the new program—the filing and resolution of twice as many grievances—was unacceptably high.

Since the program seemed to meet its stated objectives, but not without some cost, we were very interested in what led to its removal. We garnered the information we now share through interviews with members of both management and labor who were instrumental in both the introduction and discontinuance of the intervention.[2] The rationale they provided may be instructive for anyone considering the application of similar workplace justice enhancement procedures.

The removal decision was not unilateral but by mutual agreement. It is also notable that both parties acknowledged that the fact-finding intervention was effective in meeting its initial objectives. Key information, which might otherwise have been concealed until late in the grievance process, was generally shared during the fact-finding period. Also, the parties agreed that many resolutions were reached earlier in the grievance procedure than they had been formerly.

It is also fair to say that both parties were surprised by the unexpected increase in the number of grievances over the fact-finding period; both conceded that, in practice, the fact-finding intervention was extraordinarily expensive. Frankly, the union was far less concerned about these costs than the utility's management because the company largely bore them. For example, much of the added expense was in compensation for the union factfinders' time, an expense paid by the company. In management's view, the fact-finding program had far fewer benefits than could be justified by its expense.

The union's motive for agreeing with the discontinuance of the program was largely political. Union representatives were consistent in reporting widescale dissatisfaction with the fact-finding intervention among the union stewards. The key issue was a large difference between the authority of

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[2] We consulted the president, vice presidents, chief stewards, executive board members, and union stewards of the labor union local involved, among others. We also interviewed the company's vice president of human resources management and labor relations and the district personnel managers of the experimental regions. We do not represent these management and labor officials as anything more than the individuals who planned, administered, and evaluated this fact-finding program. The rationales all the members of management provided for the discontinuance of the program were consistent, as were the rationales for termination provided by all the union representatives. Notably, however, the two parties agreed to terminate the program for entirely different reasons, as will be seen. These interview reports should be viewed cautiously and be understood for what they are—the opinions of those directly involved in the decision to terminate the program. We consider these reports to be credible, but recognize that there may be certain role-specific demands on individuals at these levels in their company and union.

factfinders to resolve disputes and that of union stewards. First, factfinders were appointed by the union; but union stewards were elected. Thus, although the perceived popularity of their actions in a grievance process might bind union stewards, the factfinders could afford less concern in this area. Beyond that, factfinders had much more discretion than stewards. They could, for example, resolve any grievance without setting a precedent. Union stewards, conversely, were subject to control at every level of the grievance procedure, and since the agreements they reached were precedent-setting, they were contingent on the approval of the union. Also, under the old procedures union stewards received generous release time, with pay, to service grievances at various levels. Under the new system, however, much of this compensated time was for the benefit of factfinders. Interestingly, the company also noted similar authority problems between its factfinders—usually first-level supervisors—and high-ranking corporate officers. Company factfinders, like their union counterparts, could resolve disputes, also without setting precedent. In the past, only high-level corporate officers exercised this authority. Neither party, however, reported that this authority issue in the company was of major consequence in the decision to discontinue the intervention.

The results of this naturally occurring field experiment are provocative. We are encouraged by the robustness of the experimental design and the confidence with which certain inferences can be made. There remains, however, a fascinating dilemma. Previous approaches would suggest that high grievance rates are associated with a troubled system (e.g., Dalton & Todor, 1981; Kochan et al., 1986); conventionally, the higher the grievance rate, the more unhealthy the organizational climate. The overwhelming majority of studies conducted in these areas have a common thread—grievances should be reduced. These results may suggest the opposite. It is interesting that a large number of disputes might represent little more than the presence of a friendly system, easily accessible and time-efficient. At a minimum, it seems that high grievance rates do not invariably indicate poor labor relations.

The company's retreat from the intervention appears to have been largely cost-driven. The union's concurrence seems to have been related to the serious conflict between two competing groups in the union, the stewards and the factfinders. The authority problem may have been somewhat more tractable than the financial one. Factfinders, for instance, could have been elected, not appointed; their resolutions could have been made precedent-setting; and the role of factfinder, rather than being separate, could have been held by stewards. Future research may focus on whether improvements in workplace justice procedures are regularly associated with increased access to the process. We are aware of no research that examines changes in workplace justice procedures and the subsequent changes in the incidence of their use. It would be ironic if improvements in justice processes in the workplace are typically evaluated unfavorably because—as a result of their benefits—they actually encourage the use of those processes.

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Debra J. Mesch is an assistant professor in the School of Public and Environmental Affairs, Indiana University. She received her Ph.D. degree in organizational behavior from Indiana University. Her research interests include workplace justice issues, small group behavior, and union-management cooperation.

Dan R. Dalton is the Dow Professor of Management, Graduate School of Business, Indiana University. With General Telephone & Electronics for 13 years, he received his Ph.D. degree from the University of California. His research interests include workplace justice issues, corporate governance, and managerial ethics.

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AUTHOR INDEX

TITLE INDEX

SUBJECT INDEX

The logic followed for this index was to classify each article published into subject areas with subheadings, if needed, for greater specificity. If a particularly unique statistical method or a significant discussion of the statistical method was put forth by the author(s), then the article is also categorized by the method. In addition, if the sample is unique or identifiable by industry, gender, country of origin, job titles, and so forth, then the article is classified under an appropriate heading.

CALL FOR PAPERS

1993 ACADEMY OF MANAGEMENT MEETINGS

Theme: Managing the Boundaryless Organization
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You are invited to submit an *original* paper, symposium, or proposal for other presentations *directly* to a division or interest group chairperson listed inside.

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To be considered, your submission MUST adhere to the following rules:

1. Submissions must be entirely original and *must not* be under concurrent consideration or scheduled for presentation elsewhere. Further, they must not have been previously accepted for publication in a journal. Violation of this rule is a serious breach of professional ethics.
2. No participant is allowed to be included as an author or other participant nor in any other role as presenter, session chair, discussant, etc. IN MORE THAN 3 *submissions or sessions* for the REGULAR program. This rule does not apply to preconvention activities and meetings, nor to program listings resulting from officer roles.
3. Papers should be no more than 21 total pages *including* title page, abstract page, text, exhibits (figures, graphs, and tables), footnotes, and references. The references and format should follow the Style Guide for the *Academy of Management Journal* (pp. 245–250 in the March 1992 issue). Electronic submissions will not be accepted.
4. Papers to be presented will be selected by blind review procedures. Please word your paper so that only the title page reveals authors' names and affiliations. The title page should also show complete addresses and phone numbers of all authors and specify who will present the paper. The intended division or interest group should be listed at the bottom of the title page.
5. Symposium or other proposals must include a 3–5 page overview statement, a 2–5 page synopsis of *each* presentation, and a *signed statement* from each intended participant showing agreement to participate.
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8. Four copies of the submission plus one additional copy of the title page and the abstract page must be submitted.
9. Once a paper has been submitted, the title of the paper may not be changed, authors may not be added, and the order of authorship may not be changed.
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11. All submissions *must* be accompanied by a self-addressed, stamped, legal size envelope to be used in returning program committee decisions. Submissions across national borders must be accompanied by a self-addressed postcard and a self-addressed internationally stamped envelope.
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Submissions will be reviewed by the program committee within the professional divisions or interest groups on the basis of: (1) original contribution, (2) overall quality, and (3) interest to Academy members. Reviewers' comments will be provided to authors when they are notified of individual program committee decisions.

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All program participants must register for the conference and must personally present their submissions; there can be no no-shows. The Academy does not pay travel to or from the meeting for program participants, nor any other expenses.

PROCEEDINGS

Only a select group of papers, as judged by the program committees, will be published in the *Proceedings*. Papers accepted for publication in the

Proceedings may need to be shortened to fit within page allotments. All other papers selected for presentation will be represented by an abstract of no more than 50 words. Symposia, etc., are not included in the *Proceedings*. Specifications regarding style will be supplied later to authors by the *Proceedings* editor Dorothy Moore. The *Proceedings* will be published by photo-offset process, with camera-ready copy prepared by the authors.

REMINDER: DEADLINE FOR RECEIPT OF ALL SUBMISSIONS IS JANUARY 4, 1993.

MANAGING THE BOUNDARYLESS ORGANIZATION

Organizations must interact with, and managers of organizations must satisfy, four primary constituencies: employees; shareholders (or other providers of capital); customers/suppliers; and regulators and other representatives of the public at large. Traditionally, employees are the only constituency housed within an organization's physical boundaries, and employees are the constituency most focused upon by Academy of Management members.

Today, a number of organizations are engaged in nontraditional efforts to eliminate, or at least diminish, the boundaries that separate them from their other constituencies. Among these efforts are consortia aimed at benchmarking and sharing organizational "best practices"; customer and supplier alliances; and a host of formal, quasi-formal, and informal interactive activities with consumer and environmental protection groups, PACs, regulators, the media, and the local community.

The special theme of the 1993 meeting will be "Managing the Boundaryless Organization." While the Academy continues to welcome submissions of traditional interest to its members, we shall especially welcome papers and symposium proposals whose subjects are those constituencies not contained within the organization's four walls, for example, shareholders, customers, regulators, and representatives of the public at large. In addition, we welcome papers and proposals dealing with organizations' internal boundaries, the so-called "walls," "ceilings," and "floors" that are being diminished in favor of boundaryless organizations. Examples of topics pertinent to this special theme are:

- Cause-effect relationships between various managerial and organizational values, practices, or attributes and organizational productivity or shareholder wealth.
- Effects of various managerial and organizational values, practices, or characteristics upon cycle time, quick response capability, product/

service cost, certification of quality (e.g., Baldrige award, ISO 9000), or other facets of customer satisfaction.

- Effects of various managerial practices or attributes upon organizational compliance, ethical standards, environmental responsibility, or other aspects of global citizenship; or the effect of formal or informal action by representatives of the general public upon managerial and organizational characteristics and practices.
- Description and analysis of various organizational efforts to permeate the boundaries that separate them from their external constituencies.

Both empirical and conceptual contributions to these areas are welcome.

We are looking for new and innovative ways to enhance learning at the Academy meetings. We want to look at some alternative formats to the traditional design of having three or four papers presented, comments by a discussant, and then audience participation that is essentially one-way communication. We want to encourage the formulation of new formats for presenting and discussing research during the Academy meetings.

There are many possible alternatives to the current format. The following are some examples of formats that may provide different learning environments for us to exchange information about research:

- *Discussion group.* A discussion group is set up and led by a chairperson or co-chairpersons. It targets a specific research area. The discussion leader identifies and scopes out the research area. The major focus of the section is a discussion among members about critical issues within that research topic. The format then is a discussion group. There is no formal presentation of papers or research results. The success of this format depends on the selection of the topic and the skills of the discussion leaders.
- *Question format.* In this format, a research topic and two or three central research questions are identified. A panel of research experts addresses these research questions. So the process begins with a statement of a particular question; the panel members then provide their views on the question, and the audience joins in with their views about ways to address it. The rest of the session involves both the panel and audience talking about the remaining questions. The success of this format depends on the selection of research topic, the specific organization questions, the quality of the experts, and the ability of the audience to interact.
- *Customer requirements format.* In this format, a chairperson identifies a specific topic and a group of experts. The process begins by identifying what the audience (customers) wants to discuss relevant to that topic. The panel and the audience address the specific issues generated from the audience.
- *Topic tables format.* In this format, there is a small session with key

participants listed in the program and facilitated by someone with facilitator skills.

- *Debate format.* In this format, two debaters are chosen and a chairperson moderates the session. One debates the affirmative side of a research question for seven minutes, then the other debates the negative side for seven minutes. There is a 20–30 minute discussion with the audience asking the questions. At this point, two evaluators perform a point-by-point evaluation of the two sides, giving their opinions/results. The final phase is a "vote of the house."

These five examples are alternatives to the current format of presenting papers. They represent alternative learning environments. When submitting your papers, we would like you to consider either using one of the above formats or generating another new format that you think will enhance learning at the Academy meetings.

PROFESSIONAL DIVISION AND INTEREST GROUP DOMAIN STATEMENTS

DIVISIONS

Business Policy and Strategy. Specific domain: the roles and problems of general managers—those who manage multibusiness firms or multifunctional business units. Major topics include strategic formulation and implementation; strategic planning and decision processes; strategic control and reward systems; resource allocation; diversification and portfolio strategies; competitive strategy; selection and behavior of general managers; and the composition and processes of top management teams.

Careers. Specific domain: people's lifelong succession of work experiences, the structure of opportunity to work, and the relationship between careers and other aspects of life. Major topics include individual career development; career management strategies; career planning; relationships between human resource systems and careers; life cycle interactions with work; race, culture, and gender effects on careers; labor force diversity; internal labor market structures and functions; cross-cultural careers; and effects of demographic and social changes on work.

Entrepreneurship. Specific domain: the creation and management of new businesses, small businesses and family businesses, and the characteristics and special problems of entrepreneurs. Major topics include new venture ideas and strategies; ecological influences on venture creation and demise; the acquisition and management of venture capital and venture teams; self-employment; the owner-manager, and the relationship between entrepreneurship and economic development.

Health Care Administration. Specific domain: the health care industry.

Major topics include performance of health care workers and organizations; public policy issues, such as access to care, competition, cost control and quality of care, and their implications for managing health care organizations; health care finance and marketing; and empirical or conceptual application of theory in health care organizations, even on topics that might also fall within another division's domain.

International Management. Specific domain: content pertaining to theory, research, and practice with an international or cross-cultural dimension. Major topics include investigations of similarities and differences in organizational and management practices in different countries; appropriate organizational structures for facilitating parent-subsidiary interaction in multinational companies; and papers with an international dimension, even on topics that fall within some other division's domain.

Management Education and Development. Specific domain: the study of the organization and delivery of management education (academic) and management development (noncredit instruction). Major topics include theoretical advances or empirical evidence about effective and innovative instructional methods or technology; applications of learning theories; and evaluation studies of the effectiveness of management education and development techniques.

Management History. Specific domain: the historical development of management concepts and practices and the historical roles of individual managers. Major topics include historical assessments of the social consequences of management; reexaminations of established historical concepts; the historical role of the behavioral sciences in the emergence of management practices; historical development of present-day companies; historical analyses of management philosophy; ways of using historical materials; new directions in historical research and oral history; the importance of a historical perspective in international management; historical aspects of quality control, cultures, and health and safety in the workplace; and topics that, although they may appear to fall within some other division's domain, draw on historical data firmly rooted in a historical perspective.

Managerial Consultation. Specific domain: content relating directly to management consulting and to the interface between consulting and academic activities. Major topics include the consulting industry; the management of consulting firms; marketing of consulting; skills and roles of consultants; training and evaluation of consultants; the consulting process; ethical issues in consulting; and the participation of academics as consultants, including the role consulting should and does play in an academic career.

Organization and Management Theory. Specific domain: the study of organizations and their management on several levels of analysis; organizational births and deaths, and the impact of social, economic, and political forces at the population level; organization design and redesign; culture and adaptation processes at the organization level; management behaviors, strategies, and demographics at a collective managerial level; and the relationship of all of these and other factors to outcomes at these three levels.

Organization Development and Change. Specific domain: the development of theory and innovative practice relevant to organization change. Major topics include change processes within organizations, with or without assistance by change agents; active attempts to intervene in organizations to improve their effectiveness, and scholarly studies of such interventions; the roles of change agents; and problems of self-awareness, responsibility, and the political consequences of OD theory and practice.

Organizational Behavior. Specific domain: the study of individuals and groups within an organizational context, and the study of internal processes and practices as they affect individuals and groups. Major topics include individual characteristics such as beliefs, values, and personality; individual processes such as perception, motivation, decision making, judgment, commitment, and control; group characteristics such as size, composition, and structural properties; group processes such as decision making and leadership; organizational processes and practices such as goal setting, appraisal, feedback, rewards, and behavioral aspects of task design; and the influence of all of these on such individual, group, and organizational outcomes as performance, turnover, absenteeism, and stress.

Organizational Communication and Information Systems. Specific domain: the study of behavioral and social aspects of communication and information systems within and between organizations. Major topics include interpersonal communication; verbal, nonverbal, and electronic communication; vertical, horizontal, and diagonal communication; executive information systems; intergroup and intragroup communication; DSS and GDSS; communication networks; organizational adoption of communication and information technology; communication and information strategy and policy; communication and organizational culture; communication and information research methodology; and managing information systems.

Human Resources. Specific domain: content relating to administering the HR office, and to external influences upon the administration of work activity. Major topics include recruitment, selection, testing, and staffing; HR planning and forecasting; HR employee relations and information systems; design of policies and procedures; health and safety programs; job analysis and pay determination; compensation procedures, including benefits and services; design of performance-appraisal systems, forms, and procedures; methods by which HR programs are developed, adopted, implemented, and evaluated; the role and experiences of HR managers; the impact of the HR office on such outcomes as performance, motivation, attendance, turnover, occupational health, and safety; such external influences upon work activity as unionization, collective bargaining, industry councils, and other forms of formal employee participation; labor force participation rates and the supply of labor and the impact of legislative, economic, and political developments relevant to administering HR programs, including labor legislation, EEO/affirmative action legislation, court rulings, and regulatory agency guidelines.

Production/Operations Management. Specific domain: the design, op-

eration and control of production systems in both manufacturing and service organizations. Major topics include capacity planning; production and inventory control; facility location and layout; operations strategy; just-in-time production systems; computer-based production information systems; computer-integrated manufacturing; and the management of process technologies.

Public Sector. Specific domain: public and not-for-profit management, public policy making and governmental decision making, and other areas of research concerned with government, not-for-profit and volunteer organizations. Major topics include public organization theory and behavior; public personnel management; public-private differences; leadership, decision making, and strategic management in public and not-for-profit organizations; public-private partnerships; studies of public policy content and process; and research related to the diverse set of organizations whose primary outputs have a "public goods" character.

Research Methods. Specific domain: quantitative and qualitative research methodologies, theory building and development, and the history and philosophy of science. Major topics include transferability of research methods to other countries, languages, cultures, firms, etc.; ethnography, observation, multimethod, and other research processes; research and analytical methods used in other disciplines, and their applicability to organizational studies; research design and measurement; construct validation; and data analytical procedures.

Social Issues in Management. Specific domain: corporate social responsibility and responsiveness, business ethics, ecology, environmental management and issues, corporate social performance, and policy. Major topics include corporate social performance; ecology and ecological issues; management and response to environmental issues; corporate governance; stakeholder, crisis, and issue management; public affairs functions of organizations; interest group activities; the legal and regulatory environment of organizations; corporate crime; codes of conduct and ethics; corporate political action; the impact of demographic diversity on organizations; the social, political, and ethical impacts of technology on organizations and society; managerial values and ethics; social, political, and ethical issues facing organizations; and international and comparative aspects of business and society.

Technology and Innovation Management. Specific domain: organizational innovation, research and development, and the management of technology-based organizations. Major topics include studies of the innovation process, including innovation diffusion and the development, implementation, and use of technological innovations such as office automation; organizational processes by which technically oriented activities are integrated into organizations; behaviors and characteristics of scientists, engineers, and other technical professionals; technological forecasting and policies; the flow of technical knowledge; research project-organization and management, and the behavior of project teams; and studies of scientific and engi-

neering-based organizations, industrial R&D laboratories, and research units in other professional organizations, even on topics falling within some other division's domain.

Women in Management. Specific domain: theory, empirical research, and management practice relevant to women and gender issues in organizations. Major topics include similarities and differences between men and women in work-related attitudes, behaviors, experiences, and outcomes; research about the context and sources of any such differences; studies of issues particularly relevant to working women, such as dual careers, child care, tokenism, sexual issues at work, and job interruptions; and studies whose central contribution is in describing or understanding gender-related issues, even on topics falling within some other division's domain.

Conflict Management. Specific domain: the nature and management of conflicts between individuals, groups, and organizations; power processes including influence, coalitions, coercion, deterrence, and persuasion cognitive resolution of conflicts; collaboration and competition; bargaining and negotiation; relationships between parties; third-party intervention; procedural justice; and dispute resolution procedures.

INTEREST GROUP

Managerial and Organizational Cognition. Specific domain: the study of how organization members model reality and how such models interact with behaviors. Major topics include attention, attribution, decision making, ideology, information processing, learning, memory mental representations and images, perceptual and interpretive process, social construction, and symbols.

PROFESSIONAL DIVISION AND INTEREST GROUP SPECIAL INSTRUCTIONS

DIVISIONS

Business Policy and Strategy. An award will be given to the best competitive paper.

Entrepreneurship. Empirical and conceptual papers, symposia, and workshops are invited. Topics of special interest include new venture, the social consequences of entrepreneurship, the owner manager, family business, corporate entrepreneurship, international entrepreneurship, and entrepreneurial education. A best paper award will be presented.

Health Care Administration. An award of $500, sponsored by the American College of Health Executives, will be given for the best paper submitted. The division also offers an award of $250 for the outstanding paper based on

a dissertation; papers to be considered for this award should be clearly identified as such at the time of submission.

Management Education and Development. The division offers a $500 externally sponsored award for the best paper in management education by John Wiley & Sons and management development by *Journal of Management Development*. An additional $500 award will be offered for the best research proposal that promotes the rigorous and integrative study in the field of management education and development. The award is open to all members of the Academy and will be jointly administered by the award's sponsor, the Newport News Shipbuilding Company, and the Management Education and Development Division.

Management History. An award of rare books is given for the best competitive paper.

Managerial Consultation. Empirical and conceptual papers that integrate the Academy's various divisions and interest groups with the consultation process are invited. Externally sponsored awards are available for meritorious theoretical paper and for a meritorious applied paper appearing on the Managerial Consultation Division's program.

Organization and Management Theory. Two $500 recognition awards will be given: one for the best competitive paper (which may be co-authored) and one for the best competitive paper from a dissertation (which may not be co-authored). The dissertation paper should be clearly identified as such at the time of submission.

Organization Development and Change. An award of $500, sponsored by the *Journal of Organizational Change Management*, will be given for the best competitive paper.

Organizational Behavior. Two recognition awards will be given: one for the best competitive paper (may be co-authored) and one for the best competitive paper based on a dissertation (must not be co-authored), which should be clearly identified as dissertation-based at the time of submission.

Organizational Communication and Information Systems. Awards will be presented for competitive papers to recognize the scholarship of participants.

Human Resources. An award will be given to the best competitive paper (the paper may be co-authored) presented at the annual meeting. In addition, a $500 cash award will be given to the best student paper (the paper may be co-authored, but *the student must be the first author*). Note that in order to be considered for the best student paper award, the paper must be clearly identified as a student paper at the time of submission.

Social Issues in Management. Papers that address interorganizational collaboration; the management of and response to natural environment issues; transborder social and political issues; and potential cross-fertilization between SIM and other managerial disciplines are of special interest. The division also sponsors a doctoral dissertation award and an award for the best competitive paper.

Women in Management. The Dorothy Harlow Distinguished Paper

Award of $500 will be presented to the best competitive paper. The division encourages submissions dealing with theory and methods of studying gender issues in organizations, the impact of gender and other kinds of organizational diversity, and submissions relevant to this year's theme: managing the boundaryless organization.

Conflict Management. An award will be given for the best competitive paper.

Careers. An award of $500, sponsored by Addison-Wesley, will be given for the best paper.

1992–93 PROGRAM CHAIRS

PROFESSIONAL DIVISIONS

1. **Business Policy and Strategy**
Idalene Kesner
University of North Carolina at Chapel Hill
Kenan-Flagler Business School
Carroll Hall CB# 3490
Chapel Hill, NC 27599-3490
(919) 962-3140
(919) 962-0054 (FAX)

2. **Careers**
Lynn A. Isabella
University of Virginia
Graduate School of Business Administration
Box 6550
Charlottesville, VA 22906-6550
(804) 924-4818
(804) 924-4859 (FAX)

3. **Conflict Management**
Debra Shapiro
University of North Carolina at Chapel Hill
Kenan-Flagler Business School
Carroll Hall CB# 3490
Chapel Hill, NC 27599-3490
(919) 962-3224
(919) 962-0054 (FAX)

4. **Entrepreneurship**
Ian MacMillan
University of Pennsylvania
Snider Entrepreneurial Center—Vancehall
Philadelphia, PA 19104-6374
(215) 898-4856
(215) 898-1299

5. **Health Care Administration**
Tom D'Aunno
Institute for Social Research
P.O. Box 1248
Ann Arbor, MI 48104
(313) 763-5848
(313) 763-9900
(313) 747-4575 (FAX)

6. **Human Resources**
Rob Henemen
College of Business
Ohio State University
1775 College Road
Columbus, OH 43210
(614) 292-4587
(614) 442-7884 (Home)
(614) 292-1651 (FAX)

7. **International Management**
Ben Kedia
Memphis State University
Center for International Business Education and Research (CIBER)
220 Fogelman Executive Center
Memphis, TN 38138
(901) 678-2038
(901) 678-3678 (FAX)

8. **Management Education and Development**
Patricia M. Fandt
University of Central Florida
College of Business Administration
P.O. Box 25000
Orlando, FL 32816-0400
(407) 823-2673
(407) 823-5741 (FAX)

9. **Management History**
Eileen P. Kelly
Louisiana State University in Shreveport
College of Business Administration
Shreveport, LA 71115
(318) 797-5028
(318) 865-5739 (Home)
(318) 797-5156 (FAX)

10. **Managerial Consultation**
Larry Pate
California School of Professional Psychology–Los Angeles
Organizational Psychology Program
1000 S. Fremont Ave.
Alhambra, CA 91803-1360

(818) 284-2777
(310) 377-0428 (Home)

11. **Organization and Management Theory**
Jane E. Dutton
University of Michigan
School of Business Administration
Ann Arbor, MI 48109-1234
(313) 764-1376
(313) 763-5688 (FAX)

12. **Organization Development and Change**
Richard W. Woodman
Texas A&M University
Department of Management
College Station, TX 77843-4221
(409) 845-2310

13. **Organizational Behavior**
Jerald Greenberg
Ohio State University
College of Business
1775 College Road
Columbus, OH 43210-1399
(614) 292-9829
(614) 882-1594 (Home)
(614) 292-1651 (FAX)
(614) 882-5397 (FAX)

14. **Organizational Communication and Information Systems**
Ronald E. Rice
State University of New Jersey at Rutgers
School of Communication, Information and Library Studies
P.O. Box 5067
New Brunswick, NJ 08903-5067
(908) 932-8563
(908) 932-6916 (FAX)

15. **Production/Operations Management**
Jeff E. Heyl
DePaul University
Management Department
25 Jackson Blvd.
Chicago, IL 60604
(312) 362-6145
(312) 951-5069 (Home)

16. **Public and Nonprofit Sector**
William Crittenden
Northeastern University
College of Business Administration
313 Hayden Hall
Boston, MA 02115
(617) 437-4757
(617) 437-2056 (FAX)

17. **Research Methods**
Robert Gephart, Jr.
University of California, Irvine
Graduate School of Management
Irvine, CA
(714) 856-6112
(714) 856-8469 (FAX)

18. **Social Issues in Management**
John F. Mahon
Boston University
School of Management
621 Commonwealth Avenue
Boston, MA 02215
(617) 353-4152
(617) 353-2564 (FAX)

19. **Technology and Innovation Management**
Oscar Hauptman
Carleton University
School of Business
Ottawa, Canada
(713) 788-2600
(713) 788-2532 (FAX)

20. **Women in Management**
Eileen Kaplan
Montclair State
Department of Management
Upper Montclair, NJ 07043
(201) 893-7469
(609) 924-0956 (Home)
(201) 893-5455 (FAX)

INTEREST GROUP

21. **Managerial and Organizational Cognition**
Dennis A. Gioia
Penn State University
403 Beam BAB
University Park, PA 16802
(814) 865-6370
(814) 863-7261 (FAX)

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THE ACADEMY OF MANAGEMENT CODE OF ETHICAL CONDUCT

CREDO

We believe in discovering, sharing, and applying managerial knowledge.

PREAMBLE

Our professional goals are to enhance the learning of students, colleagues, and others and to improve the effectiveness of organizations through our teaching, research, and practice of management. We have five major responsibilities:

- To our students—Relationships with students require respect, fairness, and caring, along with recognition of our commitment to the subject matter and to teaching excellence.
- To managerial knowledge—Prudence in research design, human subject use, confidentiality, result reporting, and proper attribution of work is a necessity.
- To the Academy of Management and the larger professional environment—Support of the Academy's mission and objectives, service to the Academy and our institutions, and the recognition of the dignity and personal worth of colleagues is required.
- To both managers and the practice of management—Exchange of ideas and information between the academic and organizational communities is essential.
- To all people with whom we live and work in the world community—Sensitivity to other people, to diverse cultures, to the needs of the poor and disadvantaged, to ethical issues, and to newly emerging ethical dilemmas is required.

STUDENT RELATIONSHIPS

In our roles as educators, the central principles that underlie appropriate student-educator relationships are professionalism, respect, fairness, and concern.

Striving for teaching excellence. It is the duty of Academy members who are educators to prepare themselves carefully. Maintenance of current knowledge in the field requires a broad understanding of management theo-

ries, research and practice, and use of current classroom materials. Educators should have or develop expertise in the areas in which they teach. *Effective teaching* requires sufficient time allocated to preparation, clear classroom communication, timely grading, and a willingness to provide an explanation of a student's grade. Educators should act as role models in their relationships. They should also sensitize students to the ethical dimensions of management. In addition, educators have an obligation to present material without conscious bias and to make their own relevant biases known to their students. Educators should attempt to evaluate their teaching through some appropriate *outcome assessment* method which goes beyond concept retention.

Showing respect for students. It is the duty of Academy members who are educators to show appropriate respect for student feelings, interests, needs, contributions, and intellectual freedom. Students' *right to privacy* requires maintaining the confidentiality of academic records and private communications, unless disclosure is mandated by law, institutional policy, or morally compelling purpose. Educators must *avoid manipulation, coercion, or exploitation* of students (especially acts directed at securing monetary, ego, or sexual gratification) and should demonstrate a sensitivity to cultural and personal diversity by avoiding racial, sexual, religious, and ethnic discrimination.

Maintenance of objectivity and fairness. It is the duty of Academy members who are educators to treat students equitably. *Fair treatment* of students requires explaining and adhering to academic requirements and standards. Any subsequent change in these requirements or standards, either of the institution or in an individual course, should appropriately recognize the impact on students. *Impartiality, objectivity, and fairness* are required in all dealings with students. Examinations should be carefully prepared and written work graded in an impartial manner. Educators should scrupulously avoid entering any overly personal relationship or accepting any gift or favor which might influence, or appear to influence, an objective evaluation of a student's work. *Appropriate evaluation* of student performance requires test design, assignments, and testing conditions which minimize the possibility of academic misconduct. It is the educator's responsibility to pursue appropriate disciplinary action.

Counseling of students. It is the duty of Academy members to be helpful and sensitive in counseling students. When serving as *academic advisors*, members must be knowledgeable about academic requirements and should communicate these clearly and fully to advisees. Educators may play critical roles in a variety of *counseling situations*. This requires careful analysis of the student and situation and calls for special expertise and competence. Counseling advice should be identified as an expression of the member's own opinion. *Letters of recommendation* require candor and fairness. Members should not make insupportable statements nor fail to disclose material facts.

ADVANCEMENT OF MANAGERIAL KNOWLEDGE

Academy member research should be done honestly, have a clear purpose, show respect for the rights of all individuals and organizations, efficiently use resources, and advance knowledge in the field.

Conducting and reporting. It is the duty of Academy members conducting research to design, implement, analyze, report, and present their findings rigorously. *Research rigor* includes careful design, execution, analysis, interpretation of results, and retention of data. *Presentation* of research should fairly represent the relevant literature and should include a treatment of the data that is honest and that reveals both strengths and weaknesses of findings. When important alternate hypotheses or explanations exist, they should be noted and data that disconfirm hypotheses should be acknowledged. *Authorship and credit* should be shared in correct proportion to the various parties' contributions. Whether published or not, ideas or concepts derived from others should be acknowledged, as should advice and assistance received. Many management-related journals have policies prohibiting or restricting potential articles from being reviewed concurrently in other outlets. These policies should be closely observed or there should be explicit discussion with the relevant journal editors concerning the intended *multiple submissions*. More than one report of essentially the same data and results should not be published unless the reports are explicitly directed to different audiences through different types of outlets. When several separate but *related reports* result from a single study, the existence of the different reports should be made known to the relevant journal editors and the reports should reference each other. *Reviewer comments* should be considered thoughtfully before a manuscript is submitted to a different journal.

Participants. It is the duty of Academy members to preserve and protect the privacy, dignity, well-being, and freedom of research participants. This requires both careful research design and informed consent from all participants. *Risks and the possibility of harm* to research participants must be carefully considered and, to the extent possible, be minimized. When there is a degree of risk or potential harm inherent in the research, potential participants—organizations as well as individuals—must be informed. *Informed consent* means explaining to potential participants the purposes and nature of the research so they can freely choose whether or not to become involved. Such explanations include warning of possible harm and providing explicit opportunities to refuse to participate and to terminate participation at any time. Because students and employees are particularly subject to possible coercion, even when unintended, special care must be taken in obtaining their informed consent. *Third-party review* is one means of protecting the interests of research participants. Research plans involving human participants should be reviewed by an appropriate third party, such as a university human subjects committee or a focus group of potential participants. *Confidentiality and/or anonymity* questions must be resolved be-

tween researcher and potential research participants, both individuals and organizations, and when requested must be honored. *Deception* should be minimized and, when necessary, the degree and effects must be mitigated as much as possible. Researchers should carefully weigh the gains achieved against the cost in human dignity. To the extent that concealment and/or deception is necessary, the researcher must provide a full and accurate explanation to participants at the conclusion of the study, including counseling, if appropriate.

Dissemination. It is the duty of journal editors and reviewers to exercise their position of privilege in a confidential, unbiased, prompt, constructive, and sensitive manner. They have a duty to judge manuscripts only on their scholarly merits. *Conflicts of interest* may arise when a reviewer is in basic disagreement with the research approach or the line of research represented by a manuscript. In such cases, a reviewer should consult with the journal editor to decide whether to accept or decline to review the manuscript. *Protecting intellectual property* is a responsibility of the reviewer and the editor. The content of a manuscript is the property of its author(s). It is therefore inappropriate to use ideas or show another person a manuscript one has been asked to review, without the explicit permission of its author, obtained through the journal editor. Advice regarding specific, limited aspects of the manuscript may be sought from qualified colleagues so long as the author's intellectual property remains secure. *Sharing of reviewing responsibilities* is inappropriate. The review is the sole responsibility of the person to whom it was assigned by the journal editor. In particular, students and colleagues should not be asked to prepare reviews unless the journal's editor has given explicit approval. Anyone contributing to a review should receive formal recognition. *Constructive review* means providing critiques and comments in a spirit of collegiality with thoroughness, timeliness, compassion, and respect, and in ways intended to improve the quality of the manuscript.

Grants and contracts. It is the duty of Academy members to accurately represent themselves and their proposed projects and to manage those projects as promised. *Representation* means accurate disclosure of one's level of expertise and expected actual involvement, the outcomes that can be reasonably expected, the realistic funding level needed, and potential conflicts of interest. *Grant and contract management* requires independence and objectivity such that one does not compromise one's responsibilities or create conflicts of interest. One must also manage time and budget responsibly and use the funds as promised unless permission is explicitly granted to do otherwise.

THE ACADEMY OF MANAGEMENT AND THE LARGER PROFESSIONAL ENVIRONMENT

The Mission Statement of the Academy describes member benefits and professional opportunities which impose corresponding duties and service responsibilities.

Sharing and dissemination of information. To encourage meaningful exchange, Academy members should foster a climate of free interchange and constructive criticism within the Academy and be willing to share research findings and insights fully with other members.

Academy participation. The Academy is a voluntary association whose existence and operations are dependent on cooperation, involvement, and leadership from its members. Members should abide by the Constitution, By Laws, policies, and codes of the Academy. Members should consider offering their time and talent to carry out activities necessary to maintain the Academy and its functions. Officers and members should fulfill their Academy *obligations and responsibilities* in a timely, diligent, and sensitive manner, without regard to friendships or personal gain. Members should honor all *professional meeting commitments* including presentation of accepted papers and participation in scheduled roles as chair, discussant, or panel members. Where absence from scheduled meeting responsibilities is unavoidable, members must contact appropriate individuals and pursue suitable alternative arrangements. One should consider the *impact* one's projects or activities may have on the integrity or reputation of the Academy and not engage in those which may have possible negative implications. Members should not imply that their work is sanctioned by the Academy unless an appropriate Academy body has specifically done so.

Commitment to professional standards of conduct. By this Code, the Academy provides ongoing ethical guidance for its members. Members should work to *raise membership consciousness* concerning ethical responsibilities and encourage acceptance of these responsibilities. Members should *notify* appropriate Academy officers or committees of the practices or actions of members which they feel may violate Academy regulations or general standards of ethical conduct. In this manner, the aspirational and educational goals of this code are served through discussion of the ethical dilemmas and values of our profession.

Strengthening and renewal of the Academy. The Academy of Management must have continuous infusions of people and new points of view to remain viable and relevant as a professional association. Members may contribute to this infusion by encouraging participation in the Academy by all eligible individuals, and by assisting new and prospective members to develop their skills and knowledge, and their understanding of their professional obligations.

The professional environment for many Academy members includes the university community. The central values which underlie appropriate university participation are understanding, involvement, respect, fairness, and the pursuit of knowledge.

Participation in university leadership. Professors should take an active interest in university governance. Professors should be *aware* of university policies that affect the dissemination of knowledge and be involved in the development of such policies. Professors should endeavor to positively in-

fluence policies relating to the quality of education and service to students. Active *organizational involvement* requires exercise of personal voting rights and respect for such rights of others, without regard to rank or tenure. Professors should *evaluate colleagues* for purposes of promotion and/or tenure on the basis of appropriate Academic criteria fairly weighted in accordance with standards understood by the faculty and communicated to the subject of the evaluation. It is the duty of Academy members to treat their colleagues with respect and fairness. Members should safeguard confidential *personal matters* and avoid disclosing opinions expressed, attribution of statements, voting behavior, and outcomes. Members should *address misunderstandings* and conflicts with those directly involved and avoid speculative criticism that might damage the reputations of individuals or groups. When speaking or *acting outside their university role*, professors should avoid creating the impression that they are speaking or acting for their university and/or its administration. Professors should dispose of *complimentary books* requested from publishers by a manner other than sale.

All Academy members, whether affiliated with a university, business, governmental, service, or consulting organization have an obligation to interact with others in a professional manner.

Membership in the professional community. It is the duty of Academy members to interact with others in our community in a manner that recognizes individual dignity and merit. The responsible professional promotes and protects *the rights of individuals* without regard to race, color, religion, national origin, handicap, sex, sexual orientation, age, political beliefs, or academic ideology, and refrains from sexual harassment. In the spirit of intellectual inquiry, the professional should *welcome suggestions* and complaints openly without reprisal. Members should ensure that *outside activities* do not significantly diminish their availability and energy to meet their institutional obligations.

MANAGERS AND THE PRACTICE OF MANAGEMENT

Consulting with client organizations ("clients") has the potential for enriching the teaching and practice of management, for translating theory into practice, and for furthering research and community service. To maximize such potential benefits, it is essential that members who consult be guided by the ideals of competence, integrity, and objectivity.

Credentials and capabilities. It is the duty of consultants to represent their credentials and capabilities in an accurate and objective manner. Consultants shall accept only those assignments for which they have *appropriate expertise*. Consultants shall refrain from exaggerating their professional qualifications to secure prospective assignments. Consultants shall examine any factors (e.g., prior experience, capabilities, other commitments) that might limit their judgment or objectivity in carrying out an assignment. *University endorsement* of the consulting activities of Academy members

employed by academic institutions should not be represented or implied to potential clients unless the assignment is formally under university sponsorship or is so approved.

Obligations to clients. Consultants have a duty to fulfill their obligations to their present and prospective clients in a professionally responsible and timely manner. Consultants shall place the highest possible priority on their *clients' interests.* Consultants shall avoid or withdraw from situations in which their clients' interests come into serious conflict with their own. Consultants shall not serve two or more *competing clients* without the consent of all parties. Consultants shall *fully inform* their clients. This means presenting results and/or advice in an unbiased manner, and discussing fully with the client the values, risks, and limitations of the recommendations.

Client relations. Consultants must fulfill duties of confidentiality and efficiency as part of the relationship with their clients. Consultants shall maintain *confidentiality* with respect to their clients' identities and the assignments undertaken unless granted permission by the client. Consultants should exercise concern for the protection of client employees and other stakeholders by maintaining, in particular, appropriate confidentiality. Consultants shall not take *personal or financial advantage* of confidential information acquired as a result of their professional relationships, nor shall they provide the basis upon which others may take such advantage. Consultants should meet their time *commitments* and conserve the resources utilized.

Remuneration. It is the duty of consultants to negotiate clear and mutually accepted remuneration agreements for their services. Consultants shall provide a *realistic estimate* of the fees to be charged in advance of assignments. Fees charged shall be commensurate with the services performed.

Societal responsibilities. Consultants have a duty to uphold the legal and moral obligations of the society in which they function. Consultants should report to the appropriate authorities any *unlawful activities* that may have been uncovered during the course of engagements (except where one's functional professional code directs otherwise).

Students and employees. It is the duty of the consultant to safeguard student and employee rights when they are involved in consulting assignments. Consultants may *involve students* in work generated by engagements, especially if such work possesses learning potential, but students must not be coerced into participation. When they are so involved, students, as well as employees, should be fairly compensated and be made aware of the nature of the work they are doing.

THE WORLD COMMUNITY

As citizens of the world community, Academy members may have much to contribute in shaping global consciousness by their teaching, research, and service.

World view. Academy members have a duty to consider their responsi-

bilities to the world community. In their role as *educators*, members of the Academy can play a vital role in encouraging a broader horizon for decision making, viewing issues from a multiplicity of perspectives, including those of the least advantaged. As *researchers*, members of the Academy should consider, where appropriate, increasing their exposure to other cultures via travel, study, and research. Where appropriate, research might highlight the responsible stewardship of the Earth's resources. In addition, members should take as a challenge the ongoing task of identifying evolving ethical issues by listening to those whose welfare is affected and by exploring the interaction of people and technology. In fulfilling their *service* responsibilities, members of the Academy should consider how they might lend their time and talent to enhance the world community through involvement in uncompensated public service.

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